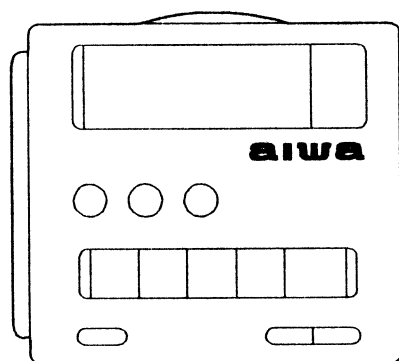


# aiwa



## AM-F3



MINI DISC RECORDER

• BASIC MD MECHANISM: 3ZG-5

• TYPE: AE1 AEH1

### SPECIFICATIONS

#### Main unit

**Playback system** MiniDisc digital audio system  
**Laser pickup** Semiconductor laser  
**Recording system** Magnetic polarity modulation overwrite system  
**Revolutions** Approx. 400 to 900 rpm (CLV)  
**Sampling Frequency** 44.1 kHz  
**Number of channels** Stereo: 2 channels  
 Monaural: 1 channel  
**Modulation system** Eight to Fifteen Modulation (EFM)  
**A/D, D/A converter** 1-bit  
**Frequency response** 20 to 20,000 Hz  $\pm 1$  dB  
**Wow and Flutter** Below measurable limit ( $\pm 0.001\%$  W.PEAK)

#### Input

	MIC*	LINE IN*	OPTICAL (digital) IN
Jack type	Stereo mini-jack	Stereo mini-jack	OPTICAL mini-jack
Rated input level	1.0 mV	250 mV	—
Minimum input level	0.5 mV	125 mV	—

\* MIC or LINE IN input is selectable by a slide switch.

#### Output

	PHONES	LINE OUT
Jack type	Stereo mini-jack	Stereo mini-jack
Rated output level	—	250mV
Maximum output level	10 mW+10 mW	—
Load impedance	16 $\Omega$	10 k $\Omega$

#### Power requirements

- Rechargeable battery: Lithium-Ion battery LIP-12 (supplied), DC 3.6 V
- Dry cell battery: LR6 (size AA) alkaline battery x 2, DC 3 V
- AC adaptor AC-421 (supplied) connected to the DC 4.5V jack
- Car battery with the use of the car battery adaptor DC-450 (not supplied) DC12V/24V

#### Battery life

	Continuous playback time	Continuous recording time
With rechargeable battery*	Approx. 6.0 hours	Approx. 3.5 hours
With dry cell batteries	Approx. 4.0 hours	Approx. 1.0 hour

\* When the rechargeable battery is fully charged.

#### Dimensions

Approx. 109.3 (W) x 26.5 (H) x 81.8 (D) mm (4  $\frac{3}{8}$  x 1  $\frac{1}{16}$  x 3  $\frac{1}{8}$  inches) incl.

#### Weight

rechargeable battery cover  
 Approx. 290 g (10 oz) incl. rechargeable battery.

- Design and specifications are subject to change without notice.
- US AND FOREIGN PATENTS LICENSED FROM DOLBY LABORATORIES LICENSING CORPORATION.

MANUAL  
SERVICE

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## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid expo-sure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

### VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainit-ulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylit-tävälle näkymättömälle lasersäteilylle.

### WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynlig laserstråling, som överskrider gränsen för laserklass 1.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radi-ation exposure.

### ATTENTION

L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

### ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

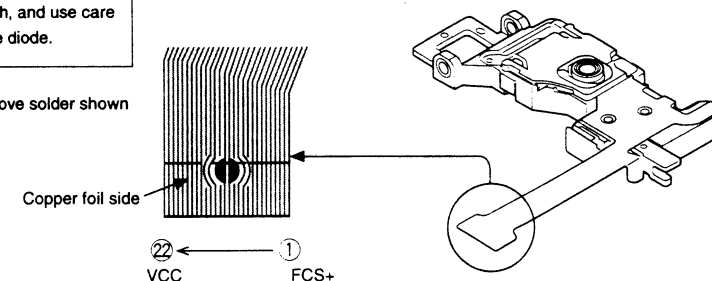
This Compact Disc player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.

CLASS 1	LASER PRODUCT
KLASSE 1	LASER PRODUKT
LUOKAN 1	LASER LAITE
KLASS 1	LASER APPARAT

## Precaution to replace Optical block (KSM-194C)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in the right figure.



## DISASSEMBLY INSTRUCTIONS

### 1. PANEL, TOP removal (Refer to Fig-1.)

- 1) Remove the four screws (A) and remove the PANEL, TOP.

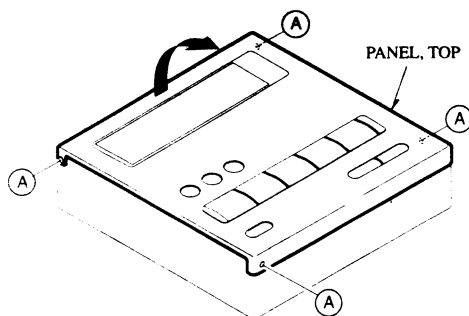


Fig-1

### 2. PANEL, BOT removal (Refer to Fig-2.)

- 1) Remove the four screws (B) and remove the PANEL, BOT.

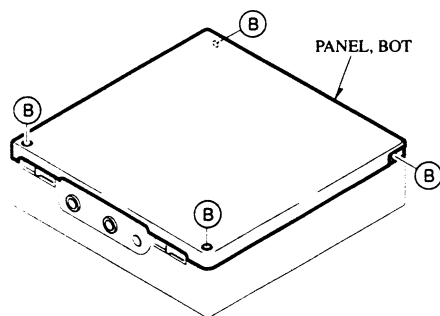


Fig-2

### 3. FRAME, CENTER removal (Refer to Fig-3.)

- 1) Remove the two screws (C) remove the two screws (D) and remove the HLDR, BAT.
- 2) Remove the FRAME, CENTER paying attention not to damage the hooks.

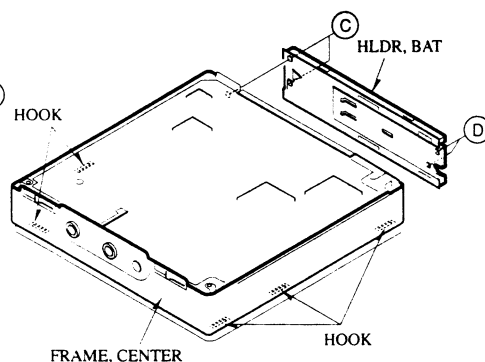


Fig-3

### 4. CHAS ASSY, TOP removal (Refer to Fig-4.)

- 1) Remove the screw (E), remove the two screws (F) and remove the CHAS ASSY, TOP in the direction of arrow.

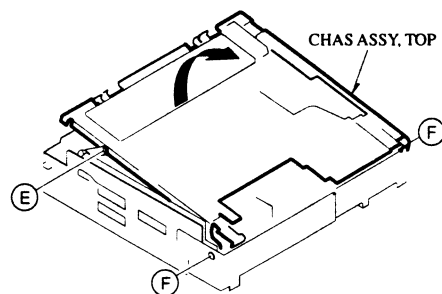


Fig-4

### 5. MAIN board removal (Refer to Fig-5.)

- 1) Remove the seven screws (G), remove the screw (H) and remove the screw (I). Remove the connectors (CN200, CN100 and CN500) and remove the MAIN board.

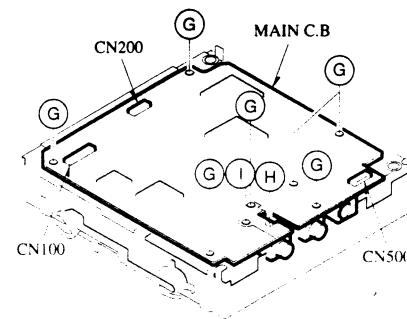


Fig-5

### 6. MD mechanism removal (Refer to Fig-6.)

- 1) Remove the three screws (J) and remove the MD mechanism in the direction of arrow.

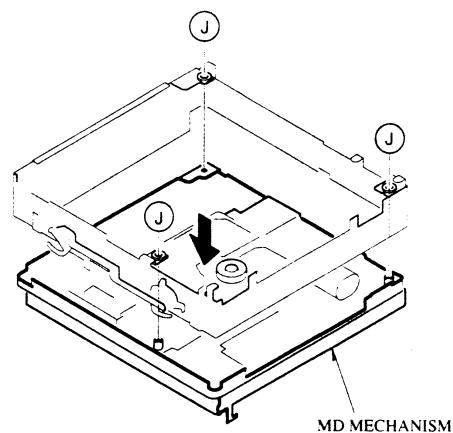


Fig-6

### 7. How to remove the PICK UP ASSY

- 1) Remove the two screws (K). (Refer to Fig-7.)
  - 2) While lifting up the over-write head arm in the direction of (1), pull out the PICK UP ASSY in the direction of arrow (2). (Refer to Fig-8.)
- Note:** Do not take hands from the over-write head arm after the PICK UP ASSY is removed, because the arm will hit the PICK UP lens and damage it. Insert a sheet of paper between the lens and over-write head are to prevent the lens from damage so that the lens will not touch the over-write head arm directly, when placing the PICK UP ASSY on a work bench.

### 8. How attach the PICK UP ASSY

- 1) Do not tighten the screw (K) too strongly. (There may be a case that movement of PICK UP ASSY does not move smoothly.) Apply adhesive agent to lock the tightened screw.)

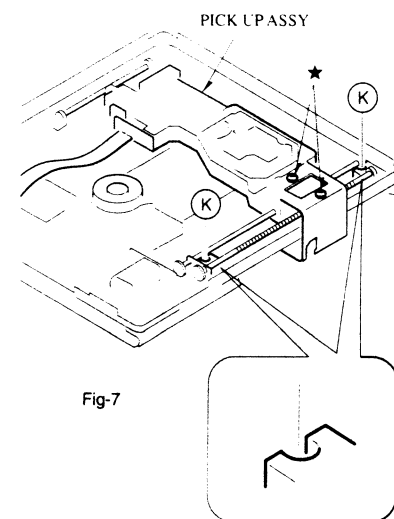


Fig-7



Fig-8

ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

IC

REF. NO.	PART NO.	カリ NO.	DESCRIPTION	REF. NO.	PART NO.	カリ NO.	DESCRIPTION
87-A20-014-010	C-IC, CXA1981Q/AR			C112	87-012-286-080		C-CAP, U 0.01-25 B
87-017-857-080	IC, TC7S049F			C114	87-016-296-080		C-CAP, TN 22-4 SV(A)
87-A20-013-010	C-IC, CXD253SR			C115	87-012-286-080		C-CAP, U 0.01-25 B
87-A20-138-040	C-IC, TC7S004FU			C116	87-016-296-080		C-CAP, TN 22-4 SV(A)
87-A20-012-010	C-IC, CXD253SR			C117	87-A10-047-080		C-CAP, TN 22-4 SV(A)
87-017-986-010	IC, HNS1W4400BLTT-8			C118	87-012-195-080		C-CAP, U 100P-50 CH
87-017-872-080	IC, TC7W080F			C119	87-A10-048-080		C-CAP, TN 22-4 P95 S
85-HM1-601-210	IC, CXP81848			C120	87-010-787-080		C-CAP, U 0.022-25B
87-A20-009-040	C-IC, MPC17A38VMEL			C121	87-010-829-080		C-CAP, U 0.047-16F
87-070-349-040	IC, LB1635M			C123	87-010-787-080		C-CAP, U 0.022-25B
87-017-869-040	IC, MB3776			C124	87-A10-047-080		C-CAP, U 1-10 Z F
87-070-296-080	IC, RS5RM3027A			C125	87-012-286-080		C-CAP, U 0.01-25 B
87-017-747-080	IC, TC7W04FU			C127	87-A10-047-080		C-CAP, U 1-10 Z F
87-017-862-080	IC, TC7S080F			C200	87-A10-047-080		C-CAP, U 1-10 Z F
87-070-299-040	IC, YSS231M			C201	87-012-279-080		C-CAP, U 2700P-50 B
87-A20-008-040	C-IC, 74HC368FW			C202	87-012-195-080		C-CAP, U 100P-50 CH
84-HM1-622-040	IC, XA8027N			C204	87-010-196-080		C-CAP, S 0.1-25 F
87-A20-210-010	C-IC, 74AL309HN2			C205	87-010-197-080		C-CAP, S 0.01-25 B
87-A20-140-040	C-IC, NM33414V			C206	87-A10-047-080		C-CAP, U 1-10 Z F
87-017-861-040	IC, TC7W74FU			C208	87-010-831-080		C-CAP, U 0.1-16F
87-A20-143-040	C-IC, TM11228			C209	87-016-296-080		C-CAP, TN 22-4 SV(A)
87-017-596-080	IC, NJM2107F			C210	87-012-196-080		C-CAP, U 120P-50 CH
87-017-853-040	IC, NJM2100V			C212	87-010-787-080		C-CAP, U 0.022-25B
87-017-855-040	IC, BH3530FS			C213	87-012-276-080		C-CAP, U 1500P-50 B
87-017-863-040	IC, TC4W66FU			C214	87-A10-047-080		C-CAP, U 1-10 Z F

TRANSISTOR

87-026-647-080	C-TR, DTA123JE			C400	87-012-169-080		C-CAP, U 7P-50 CH
89-115-884-080	C-TR, 2SA1588Y			C401	87-012-170-080		C-CAP, U 8P-50 CH
87-A30-027-080	C-TR, 2SC4617R			C402	87-010-831-080		C-CAP, U 0.1-16F
87-026-644-080	C-TR, DTA144EE			C403	87-010-831-080		C-CAP, U 0.1-16F
89-424-022-080	C-TR, 2SD2402EY			C405	87-A10-035-080		C-CAP, TN 2.2-4 SVS-P
87-026-653-080	C-TR, DTC123JE			C406	87-012-286-080		C-CAP, U 0.01-25 B
87-026-645-080	C-TR, DTC144EE			C407	87-012-286-080		C-CAP, U 0.01-25 B
89-215-713-080	C-TR, 2SB1571PZ			C408	87-012-286-080		C-CAP, U 0.01-25 B
89-341-165-080	C-TR, 2SC4116GR			C500	87-010-831-080		C-CAP, U 0.1-16F
89-112-134-080	C-TR, 2SA1213Y			C501	87-A10-047-080		C-CAP, U 1-10 Z F
89-523-150-080	C-TR, 2SK2315			C502	87-016-432-080		C-CAP, TN 22-6.3 P95A
87-A30-030-080	C-TR, RN2911			C503	87-A10-047-080		C-CAP, U 1-10 Z F
87-026-527-080	C-TR, HMA101FU(G)			C504	87-A10-047-080		C-CAP, U 1-10 Z F
89-115-864-080	C-TR, 2SA1586Y			C507	87-016-296-080		C-CAP, TN 22-4 SV(A)
87-026-529-080	C-TR, RN1907			C509	87-016-564-080		C-CAP, TN 10-6.3 PSN
87-A30-035-080	C-TR, DTC323TU			C509	87-A10-057-080		C-CAP, TN 100-4 P95 E

DIODE

87-017-850-080	C-DIODE, DAP222			C601	87-016-442-080		CAP, AS 33-10 OS SL
87-A40-124-080	C-DIODE, RB501V-40			C603	87-A10-047-080		C-CAP, U 1-10 Z F
87-A40-158-080	C-DIODE, SB02-03C			C604	87-012-274-080		C-CAP, U 100P-50 B
87-017-852-080	C-DIODE, HRN502A			C605	87-012-284-080		C-CAP, U 680P-50 B
87-017-753-080	C-DIODE, SB007T03Q			C606	87-012-276-080		C-CAP, U 1500P-50 B
87-017-989-080	C-DIODE, FLJ6			C607	87-012-276-080		C-CAP, U 1500P-50 B
				C608	87-A10-035-080		C-CAP, TN 2.2-4 SVS-P
				C609	87-010-831-080		C-CAP, U 0.1-16F

MAIN C.B

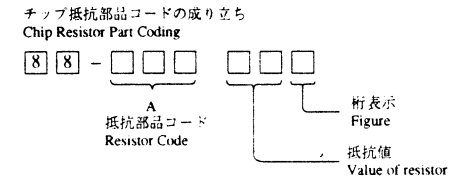
BAT1	87-047-156-010	BAT, PAS920L-VL3		C610	87-016-442-080		CAP, AS 33-10 OS SL
C100	87-012-286-080	C-CAP, U 0.01-25 B		C612	87-A10-047-080		C-CAP, U 1-10 Z F
C101	87-A10-048-080	C-CAP, TN 22-4 P95 S		C613	87-A10-057-080		C-CAP, TN 100-4 P95 E
C102	87-A10-048-080	C-CAP, TN 22-4 P95 S		C614	87-A10-019-080		C-CAP, TN 10-6.3 A
C103	87-012-274-080	C-CAP, U 100P-50 B		C615	87-010-829-080		C-CAP, U 0.047-16F
C104	87-010-829-080	C-CAP, U 0.047-16F		C616	87-012-274-080		C-CAP, U 100P-50 B
C105	87-012-272-080	C-CAP, U 680P-50 B		C617	87-016-564-080		C-CAP, 10-6.3 PSN
C106	87-012-284-080	C-CAP, U 680P-50 B		C618	87-010-831-080		C-CAP, U 0.1-16F
C107	87-A10-025-080	C-CAP, U 0.022-16Z F		C619	87-010-831-080		C-CAP, U 0.1-16F
C108	87-A10-047-080	C-CAP, U 1-10 Z F		C620	87-010-831-080		C-CAP, U 0.1-16F
C109	87-010-831-080	C-CAP, U 1-10 Z F		C621	87-010-831-080		C-CAP, U 0.1-16F
C110	87-010-831-080	C-CAP, U 1-10 Z F		C622	87-010-831-080		C-CAP, U 0.1-16F
C111	87-010-831-080	C-CAP, U 1-10 Z F		C623	87-A10-019-080		C-CAP, TN 10-6.3 A
C112	87-012-286-080	C-CAP, U 0.01-25 B		C624	87-012-286-080		C-CAP, U 0.01-25 B
C113	87-012-286-080	C-CAP, U 0.01-25 B		C625	87-012-286-080		C-CAP, U 0.01-25 B
C114	87-012-286-080	C-CAP, U 0.01-25 B		C626	87-012-286-080		C-CAP, U 0.01-25 B
C115	87-012-286-080	C-CAP, U 0.01-25 B		C627	87-A10-035-080		C-CAP, TN 2.2-4 SVS-P
C116	87-012-286-080	C-CAP, U 0.01-25 B		C628	87-010-831-080		C-CAP, U 0.1-16F

REF. NO.	PART NO.	カリ NO.	DESCRIPTION	REF. NO.	PART NO.	カリ NO.	DESCRIPTION
C665	87-012-286-080		C-CAP, U 0.01-25 B	L601	87-A50-012-080		C-COIL, 100UH LQH3C
C700	87-010-831-080		C-CAP, U 0.1-16F	L602	87-A50-010-080		C-COIL, 220UH LQH3C
C900	87-016-296-080		C-CAP, TN 22-4 SV(A)	L900	87-003-243-080		C-COIL, S 100H K
C901	87-A10-047-080		C-CAP, U 1-10 Z F	L901	87-003-243-080		C-COIL, S 100H K
C902	87-A10-047-080		C-CAP, U 1-10 Z F	L903	87-005-774-080		C-COIL, 4BLH
C903	87-A10-047-080		C-CAP, U 1-10 Z F	L904	87-A50-013-080		C-COIL, 560UH LQH3C
C904	87-A10-047-080		C-CAP, U 1-10 Z F	L905	87-A50-014-080		C-COIL, MC2525AT102
C906	87-016-436-080		C-CAP, TN 47-4 (B2)	R418	87-022-247-080		C-RES, U 22K-1/16W F
C907	87-012-198-080		C-CAP, U 180P-50 CH	R419	87-022-284-080		C-RES, U 68K-1/16W F
C908	87-016-296-080		C-CAP, TN 22-4 SV(A)	R600	87-022-290-080		C-RES, U 220K-1/16W F
C909	87-016-296-080		C-CAP, TN 22-4 SV(A)	R605	87-022-290-080		C-RES, U 220K-1/16W F
C910	87-012-172-080		C-CAP, U 10P-50 CH	R606	87-022-294-080		C-RES, U 470K-1/16W F
C911	87-012-186-080		C-CAP, U 39P-50 CH	R629	87-022-243-080		C-RES, U 15K-1/16W F
C912	87-012-198-080		C-CAP, U 180P-50 CH	R630	87-022-248-080		C-RES, U 24K-1/16W F
C913	87-012-172-080		C-CAP, U 10P-50 CH	SW100	87-036-269-080		SW, PUSH ESE102MH1
C914	87-012-186-080		C-CAP, U 39P-50 CH	SW200	87-036-273-080		C-SW, TACT STEM
C915	87-016-296-080		C-CAP, TN 22-4 SV(A)	SW900	87-036-373-080		C-SW, SLIDE 1-1-2 (E)
C916	87-A10-019-080		C-CAP, TN 10-6.3 A	SW901	87-036-373-080		C-SW, SLIDE 1-1-2 (E)
C917	87-A10-019-080		C-CAP, TN 10-6.3 A	VR100	87-024-409-080		C-SFR, 22K RH03A3A
C918	87-A10-047-080		C-CAP, U 1-10 Z F	VR101	87-024-411-080		C-SFR, 47K RH03A3A
C919	87-A10-047-080		C-CAP, U 1-10 Z F	VR600	87-024-407-080		C-SFR, 10K RH03A3A
C920	87-016-449-080		C-CAP, TN 10-4 P95 P	X330	87-030-359-080		C-VIB, XTAL 45.158MHZ
C921	87-016-296-080		C-CAP, TN 22-4 SV(A)	X400	87-030-358-080		C-VIB, XTAL 32.768KHZ
C922	87-A10-047-080		C-CAP, U 1-10 Z F	X401	87-030-369-080		C-VIB, CER FBRC12.00B
C923	87-012-286-080		C-CAP, U 0.01-25 B				
C925	87-016-296-080		C-CAP, TN 22-4 SV(A)	MEC-U C.B			
C927	87-A10-047-080		C-CAP, U 1-10 Z F	C800	87-A10-019-080		C-CAP, TN 10-6.3 A
C928	87-A10-047-080		C-CAP, U 1-10 Z F	C802	87-A10-048-080		C-CAP, TN 22-4 P95 S
C929	87-A10-047-080		C-CAP, U 1-10 Z F	C803	87-010-177-080		C-CAP, S 820P-50 SL
C930	87-012-170-080		C-CAP, U 8P-50 CH	C804	87-A10-019-080		C-CAP, TN 10-6.3 A
C931	87-012-170-080		C-CAP, U 8P-50 CH	C805	87-010-829-080		C-CAP, U 0.047-16F
C932	87-A10-047-080		C-CAP, U 1-10 Z F	C806	87-016-296-080		C-CAP, TN 22-4 SV(A)
C933	87-A10-047-080		C-CAP, U 1-10 Z F	C807	87-016-296-080		C-CAP, TN 22-4 SV(A)
C934	87-016-449-080		C-CAP, TN 10-4 P95 P	C810	87-016-296-080		C-CAP, TN 22-4 SV(A)
C935	87-012-275-080		C-CAP, U 1200P-50 B	C850	87-A10-057-080		C-CAP, TN 100-4 P95 E
C936	87-012-275-080		C-CAP, U 1200P-50 B	C851	87-A10-057-080		C-CAP, TN 100-4 P95 E
C937	87-A10-047-080		C-CAP, U 1-10 Z F	CN800	87-A60-089-080		C-CONN, 18P CFP55
C938	87-A10-047-080		C-CAP, U 1-10 Z F	CN801	87-A60-093-080		C-CONN, 6P CFP55
C940	87-016-296-080		C-CAP, TN 22-4 SV(A)	L801	87-A50-011-080		C-COIL, 47UH LQH3C
C942	87-016-562-080		C-CAP, TN 4.7-10 SV A	SW800	87-036-269-080		SW, PUSH ESE102MH1
C943	87-A10-193-080		C-CAP, 4.7-16 Z F	SW801	87-036-312-080		C-SW, PUSH 102MH4
C944	87-A10-193-080		C-CAP, 4.7-16 Z F				
C945	87-016-446-080		C-CAP, TN 220-4 P95 G	MEC-D C.B			
C946	87-016-446-080		C-CAP, TN 220-4 P95 G	C830	87-A10-019-080		C-CAP, TN 10-6.3 A
C947	87-012-191-080		C-CAP, U 68P-50 CH	C832	87-010-787-080		C-CAP, U 0.022-25B
C948	87-016-296-080		C-CAP, TN 22-4 SV(A)	C833	87-010-787-080		C-CAP, U 0.022-25B
C949	87-010-831-080		C-CAP, U 0.1-16F	C834	87-010-829-080		C-CAP, U 0.047-16F
C950	87-012-186-080		C-CAP, U 39P-50 CH	C835	87-010-831-080		C-CAP, U 0.1-16F
C951	87-012-186-080		C-CAP, U 39P-50 CH	C836	87-012-274-080		C-CAP, U 1000P-50 B
C952	87-012-191-080		C-CAP, U 68P-50 CH	C837	87-012-274-080		C-CAP, U 1000P-50 B
CN100	87-A60-088-080		C-CONN, 22P CFP55	C838	87-012-274-080		C-CAP, U 1000P-50 B
CN200	87-A60-092-080		C-CONN, 11P CFP55	C839	87-010-831-080		C-CAP, U 0.1-16F
CN300	87-A60-090-080		C-CONN, 14P CFP55	C840	87-012-280-080		C-CAP, U 3300P-50 B
CN400	87-A60-091-080		C-CONN, 12P CFP55	C841	87-010-805-080		C-CAP, S 1-16 F
CN500	87-A60-128-080		C-CONN, 6P CFP57	CN830	87-A60-092-080		C-CONN, 11P CFP55
D200	87-017-925-070		C-VARACTOR, KV1460	FC1	85-HM1-604-010		FF-CABLE, 11P 0.5 69M
J600	87-099-591-010		JACK, HEC3600Y	FC2	85-HM1-605-010		FF-CABLE, 4P 2.1 11MM
J900	87-099-575-010		JACK, 3.5ST BLK 5P	L830	87-A50-012-080		C-COIL, 100UH LQH3C
L100	87-A50-009-080		C-COIL, 22UH NLC25	SW830	87-036-312-080		C-SW, PUSH 102MH4
L505	87-A50-108-080		C-COIL, 33UH K NLC25	SW831	87-036-350-080		C-SW, PUSH SPW9-4.8
L102	87-A50-012-080		C-COIL, 100UH LQH3C	SW832	87-036-366-080		C-SW, PUSH SPW9-5.45
L200	87-005-778-080		C-COIL, 100K NLC25	SW833	87-A90-109-080		C-SW, PUSH 4-1-1 SPW
L201	87-005-777-080		C-COIL, 10K NLC25				
L300	87-A50-009-080		C-COIL, 22UH NLC25				
L500	87-A50-013-080		C-COIL, 560UH LQH3C				
L501	87-003-243-080		C-COIL, S 100H K	JACK C.B			
L502	87-A50-012-080		C-COIL, 100UH LQH3C	J901	87-A60-087-010		JACK, GP1F362R
L503	87-005-778-080		C-COIL, 100K NLC25				
L505	87-005-778-080		C-COIL, 100K NLC25	BATT C.B			
L600	87-005-779-080		C-COIL, 100H M 075C				




REF NO	PART NO.	カリ NO	DESCRIPTION	REF NO	PART NO	カリ NO	DESCRIPTION
EL C.B				FLEX TACT C.B			
EL800	85-HM1-602-110	EL,5HM-1 LM-G			85-HM1-606-010	PWB,FLEX TACT	
				LCD800	85-HM1-609-010	LCD,5HM-1	
FLEX EL C.B				FLEX BATT C.B			
	85-HM1-609-010	PWB,FLEX EL					
C870	87-A10-126-000	C-CAP,U 100P-200J SL					
L800	85-HM1-603-010	C-TRANS,EL SU-202(4)					

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE



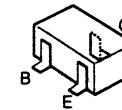
チップ抵抗  
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード : A Resistor Code: A
				外形／Form	L	W	t	
1/16W	1608	±5%	CJ		1.6	0.8	0.45	108
1/10W	2125	±5%	CJ		2	1.25	0.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.55	128

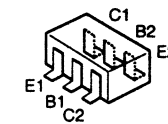
TRANSISTOR ILLUSTRATION



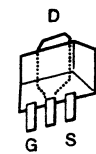
2SA1213  
2SB1571  
2SD2402



2SA1586  
2SA1588  
2SC4116  
2SC4617  
DTA123JE  
DTA144EE  
DTC123JE  
DTC144EE  
DTC323TU

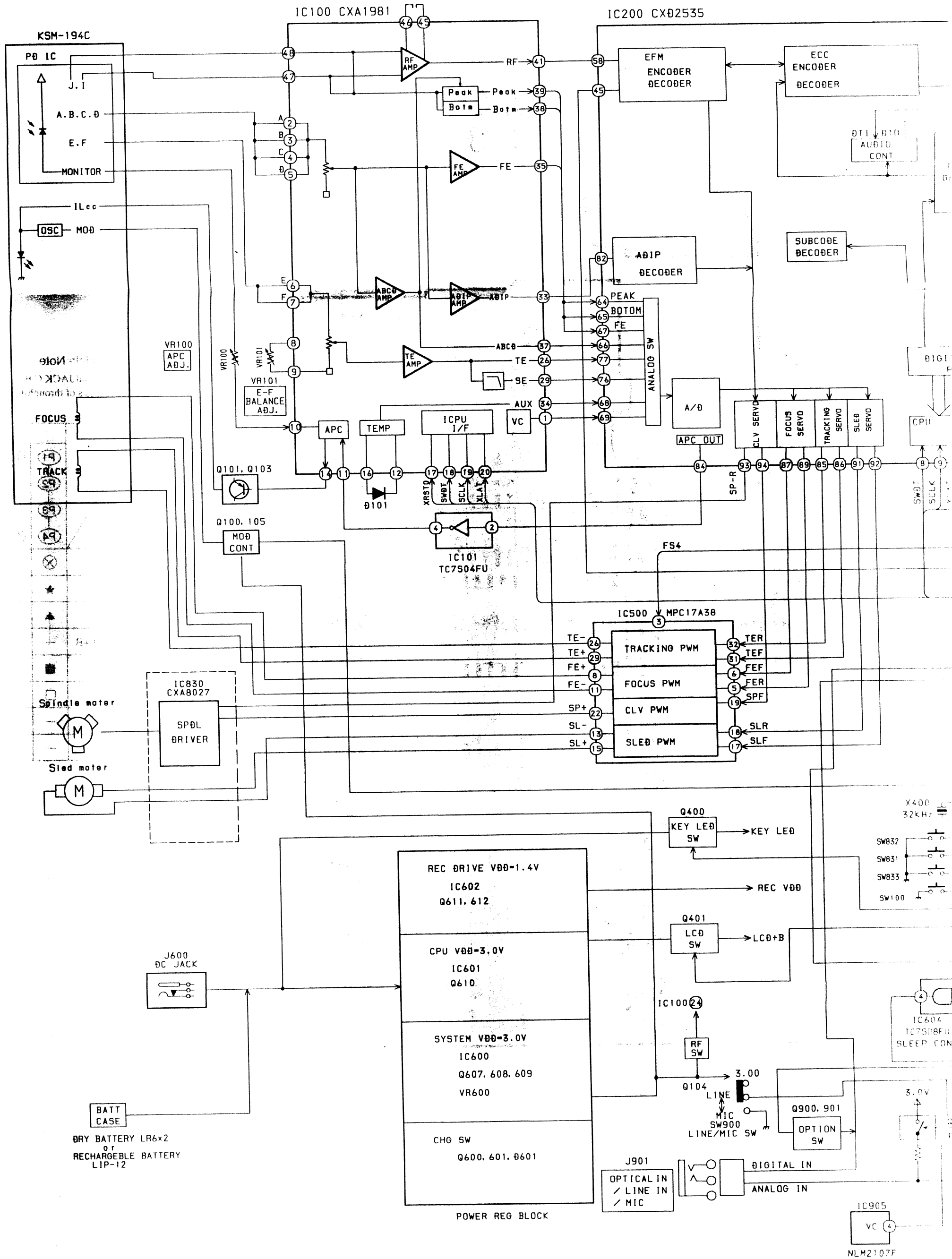


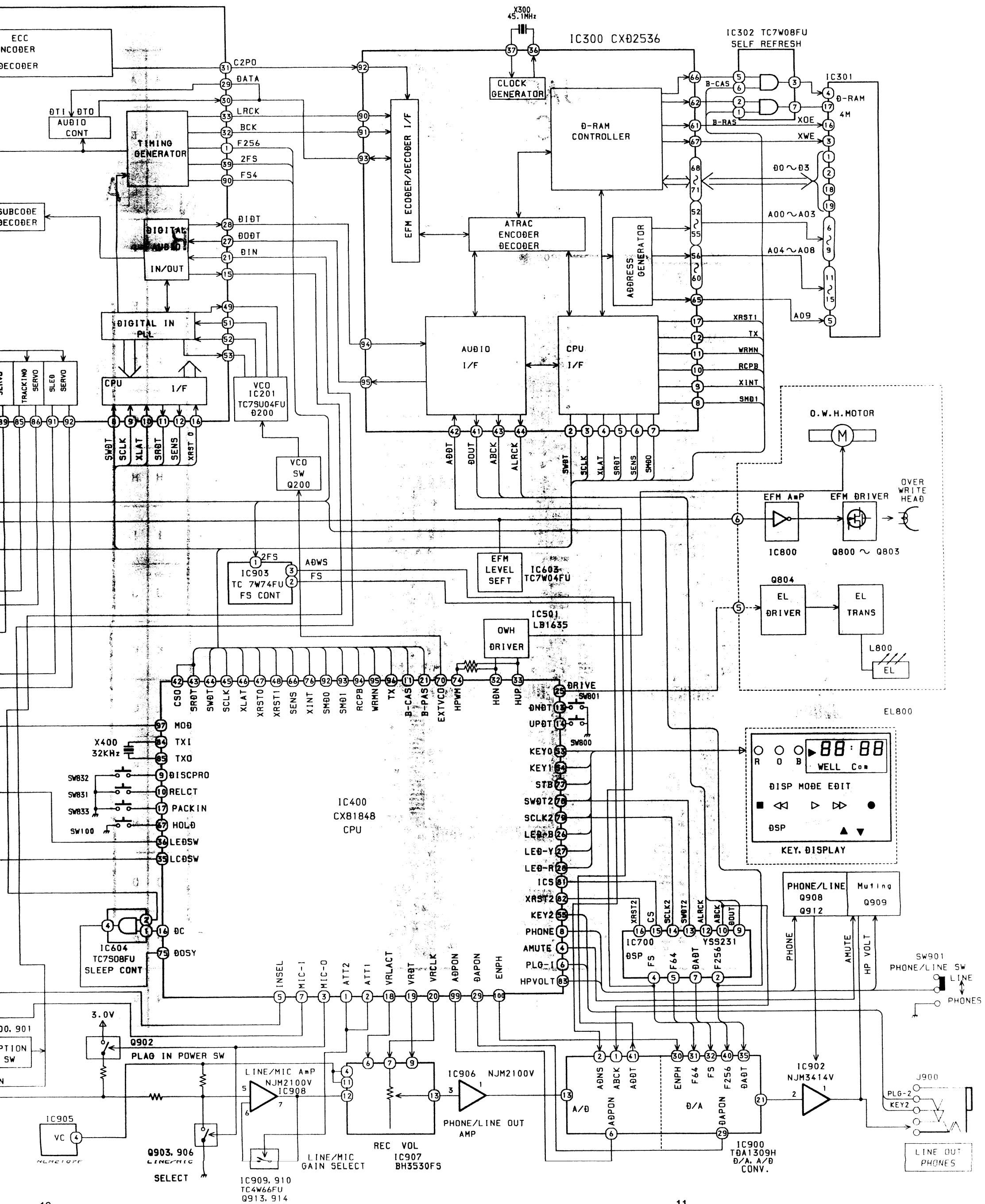
HA1A01FU  
RN1907  
RN2911

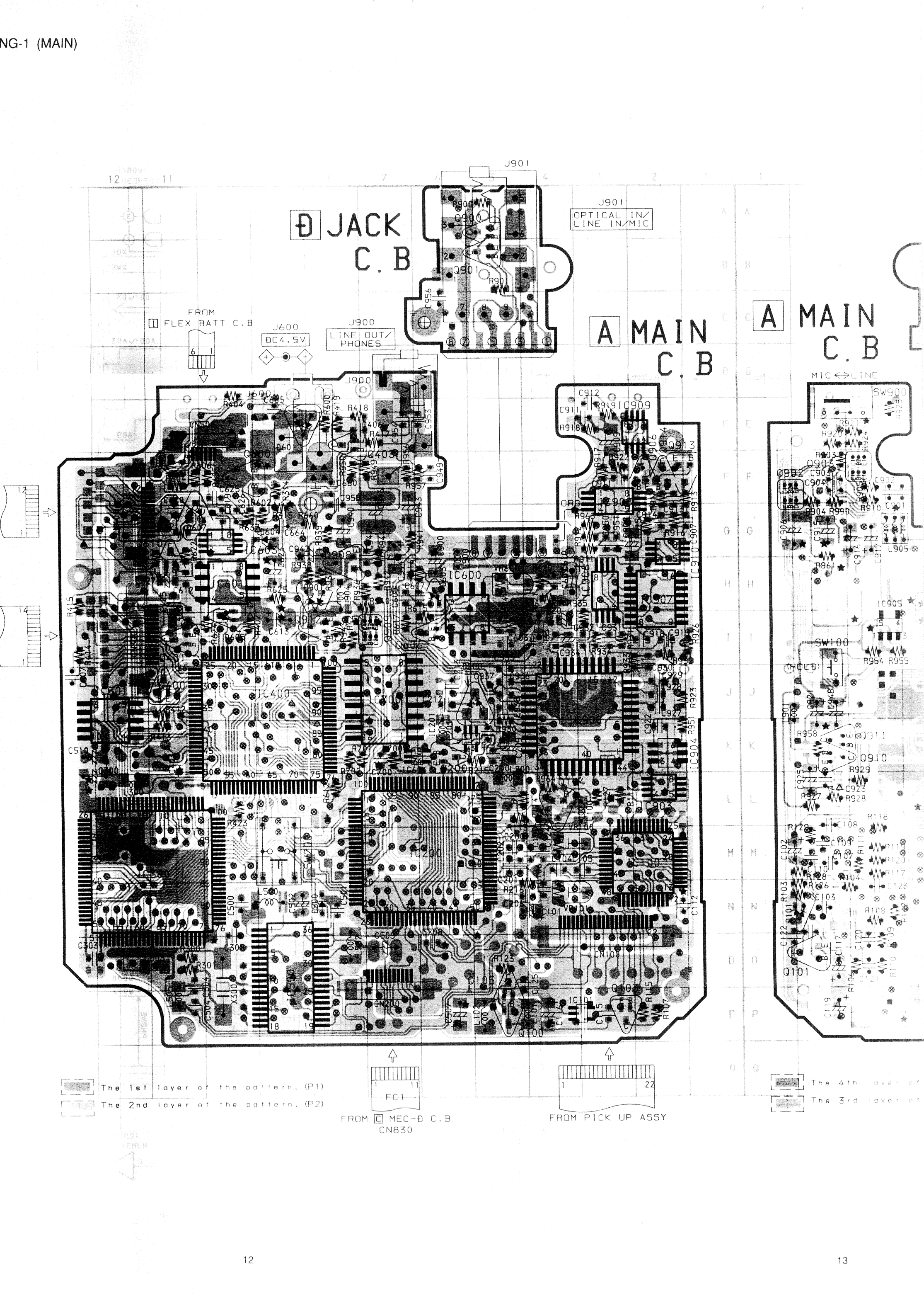


2SK1579  
2SK2315

# BLOCK DIAGRAM





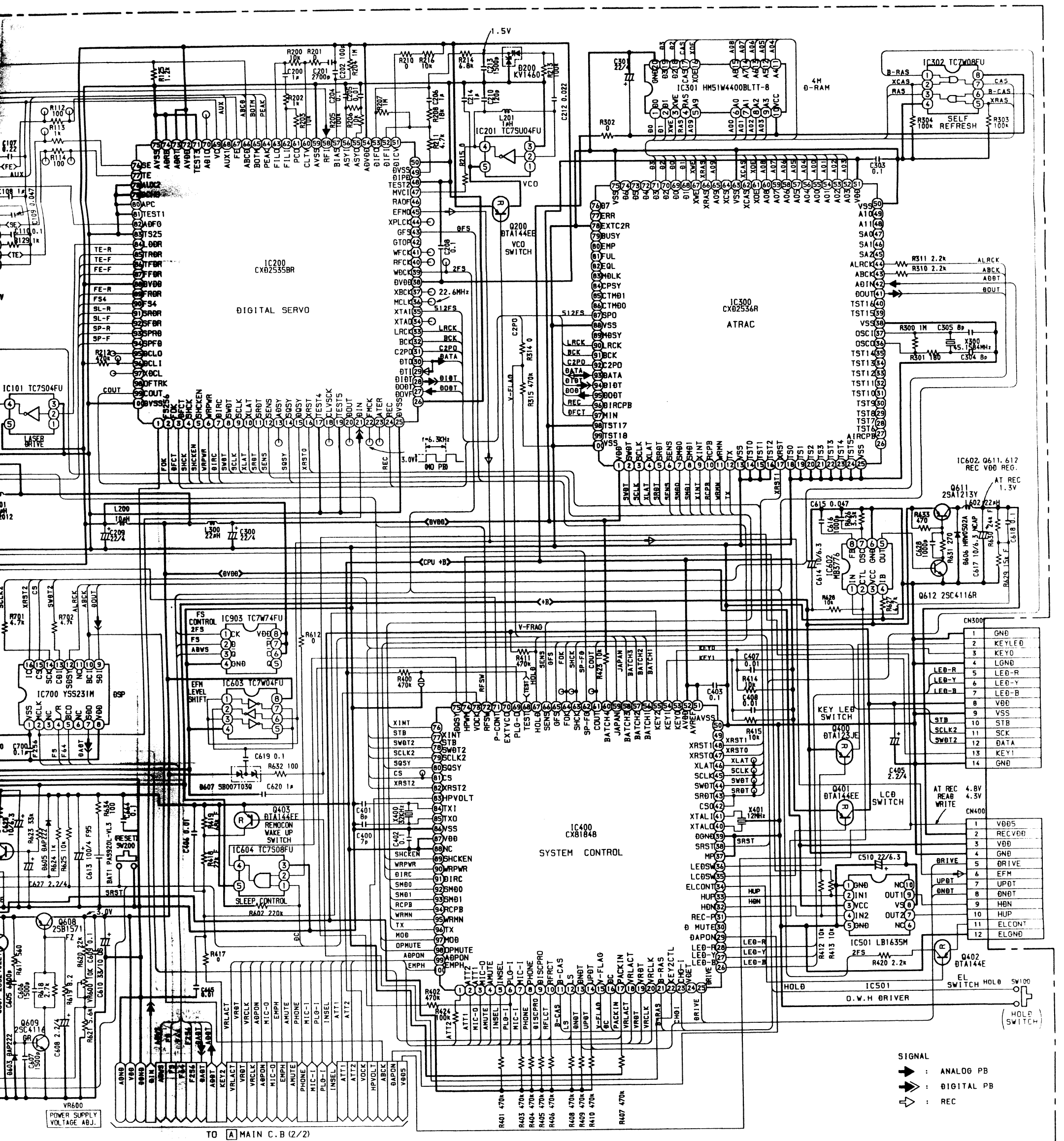






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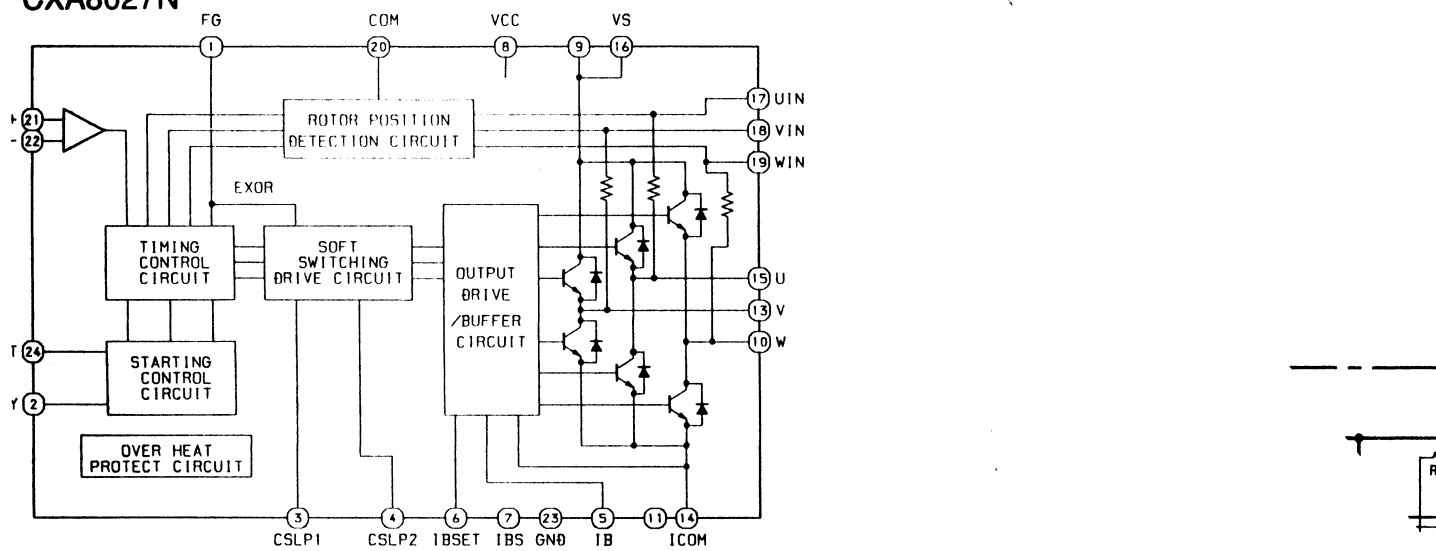




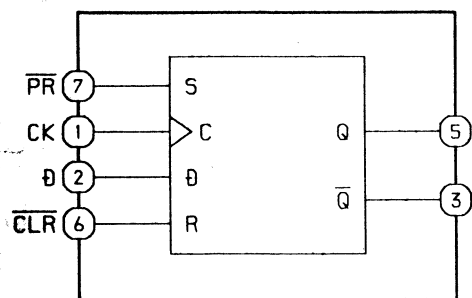
SIGNAL  
— : ANALOG PB  
- - : DIGITAL PB  
· : REC



# CXA8027N



## IC, TC7W74FU

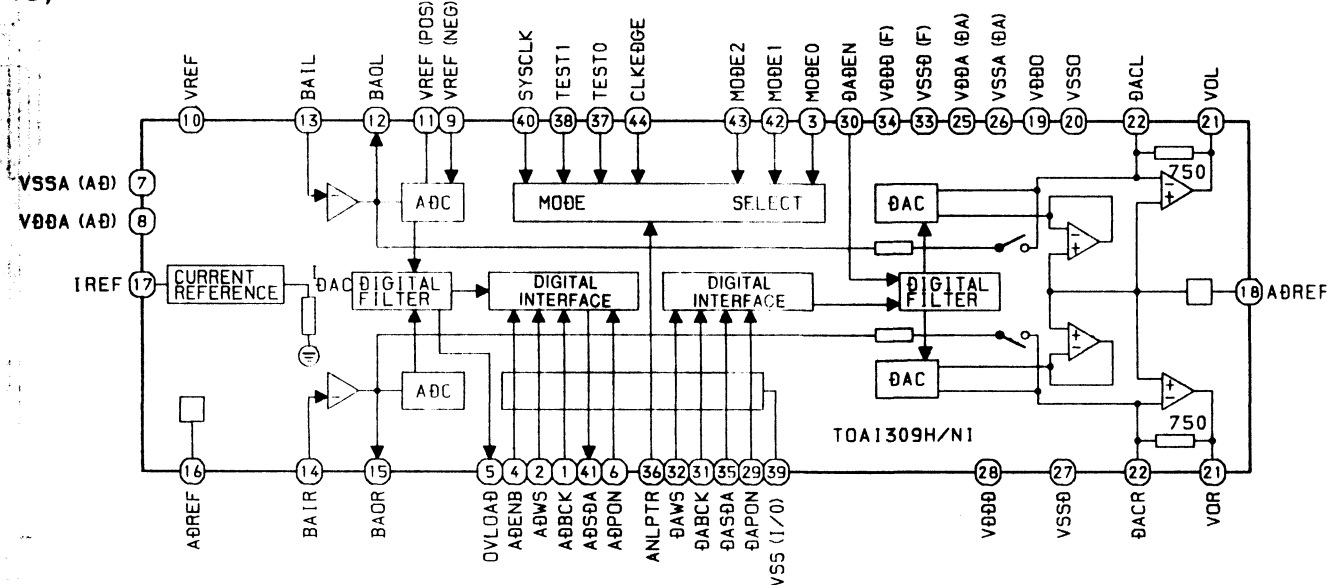


## TRUTH TABLE

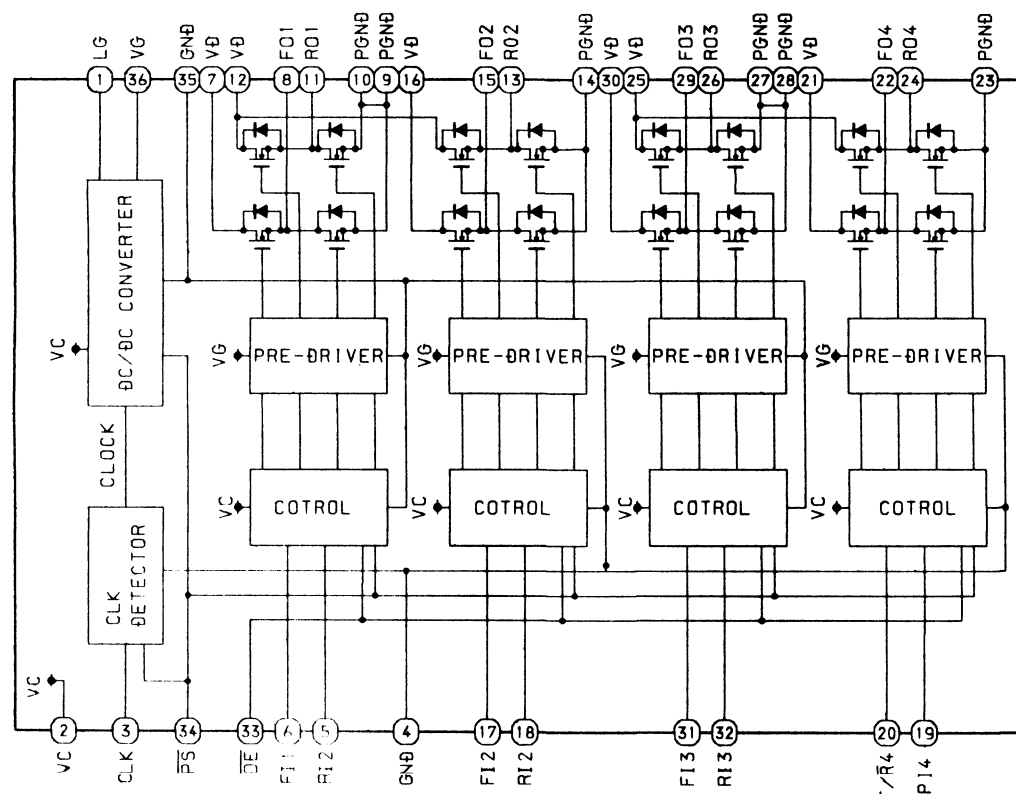
MODE	CE1	CE2	OE	WE	I/O	power source current
read cycle	L	H	L	H	data output	ICCA
write cycle	L	H	X	L	data input	ICCA
output disable	L	H	H	H	high impedance	ICCA
no choice	H	X	X	X	high impedance	ICCS
	X	L	X	X	high impedance	ICCS

X : H or L

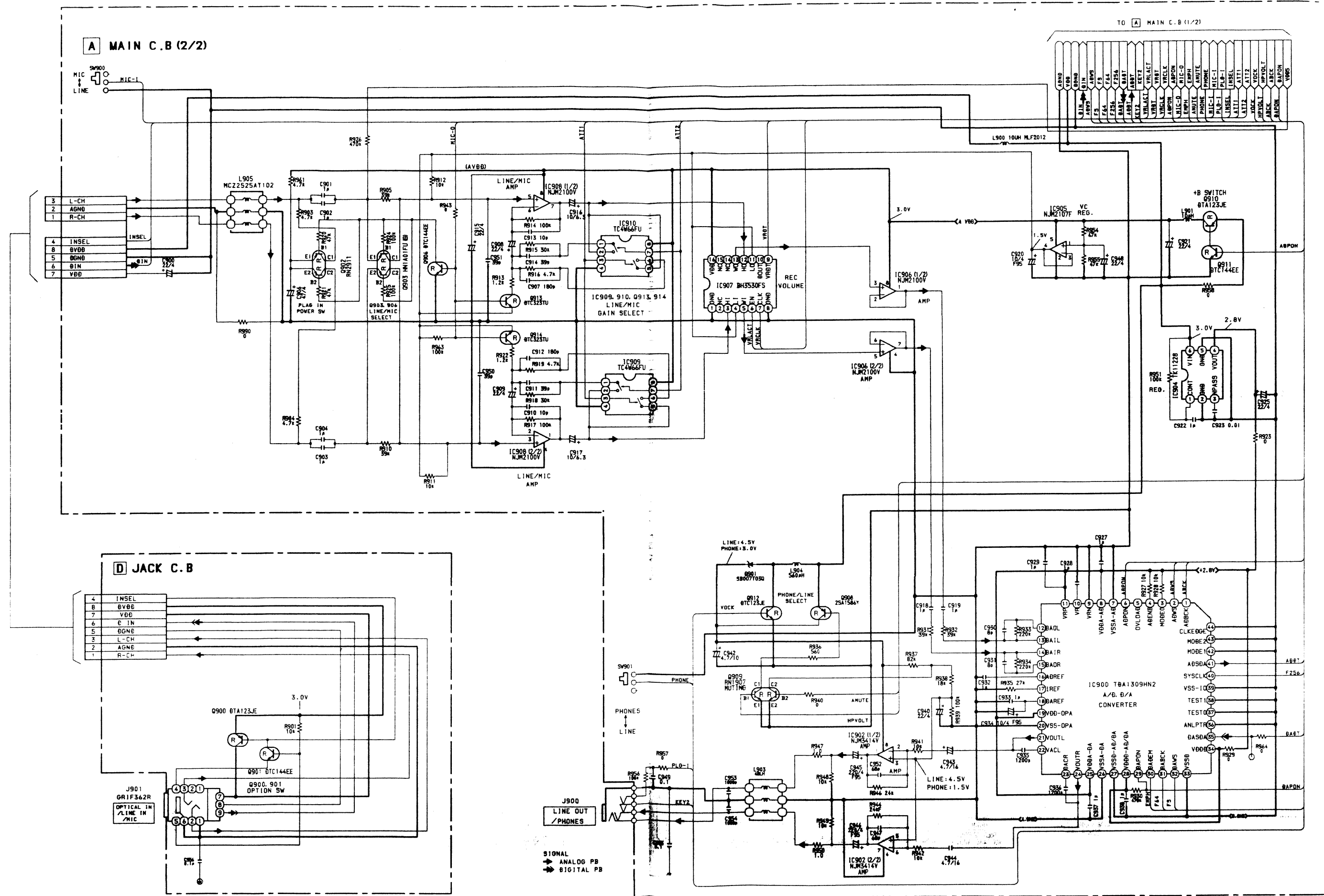
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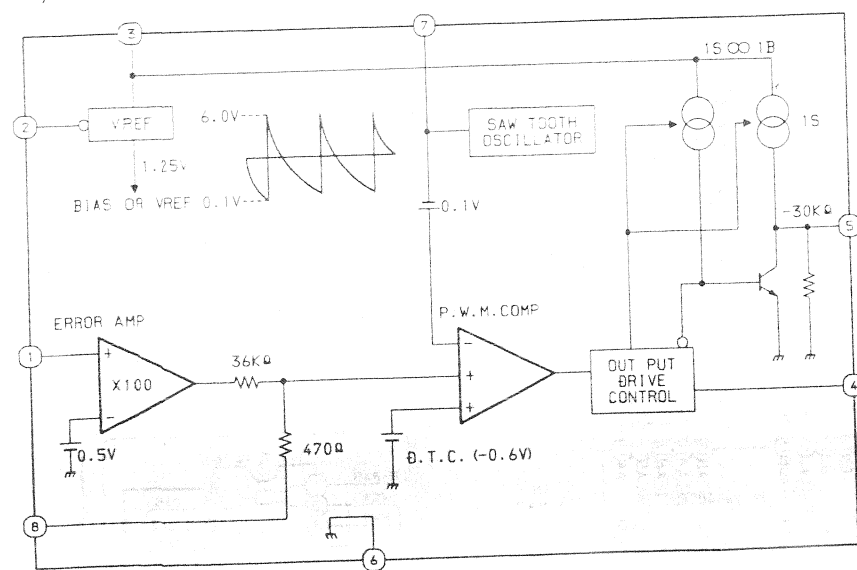
## IC, MPC17A38VM



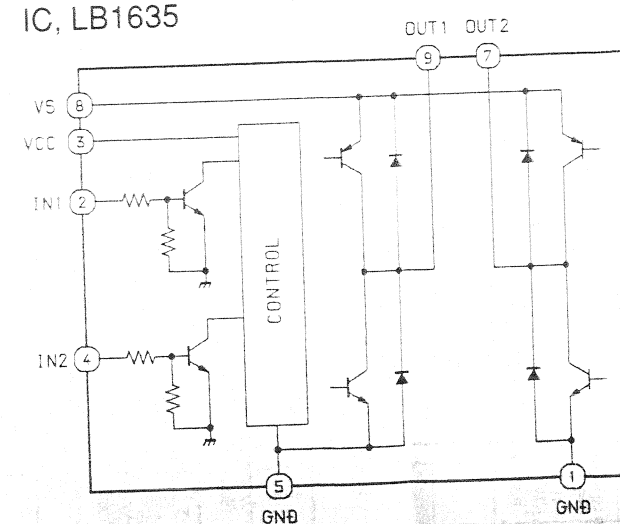




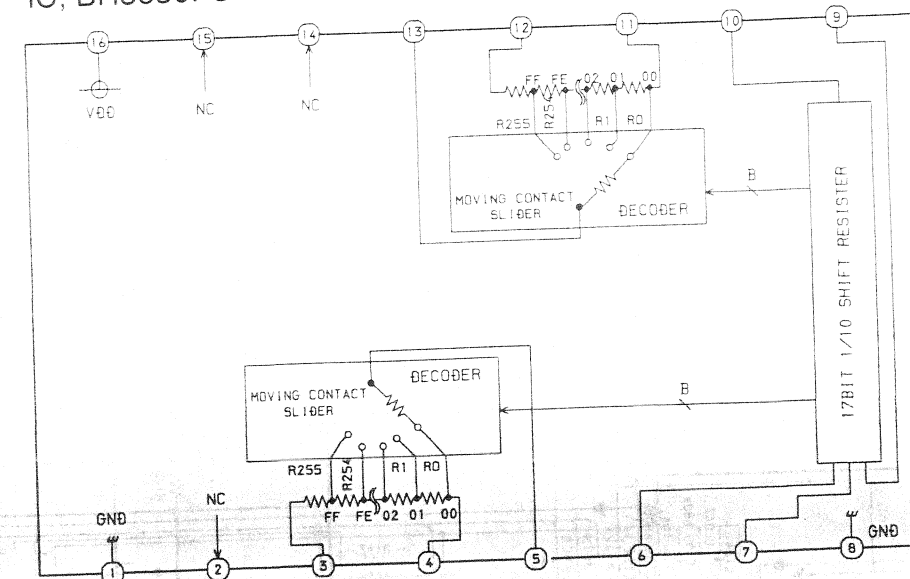
IC, MB3776F



IC, LB1635



IC, BH3530FS

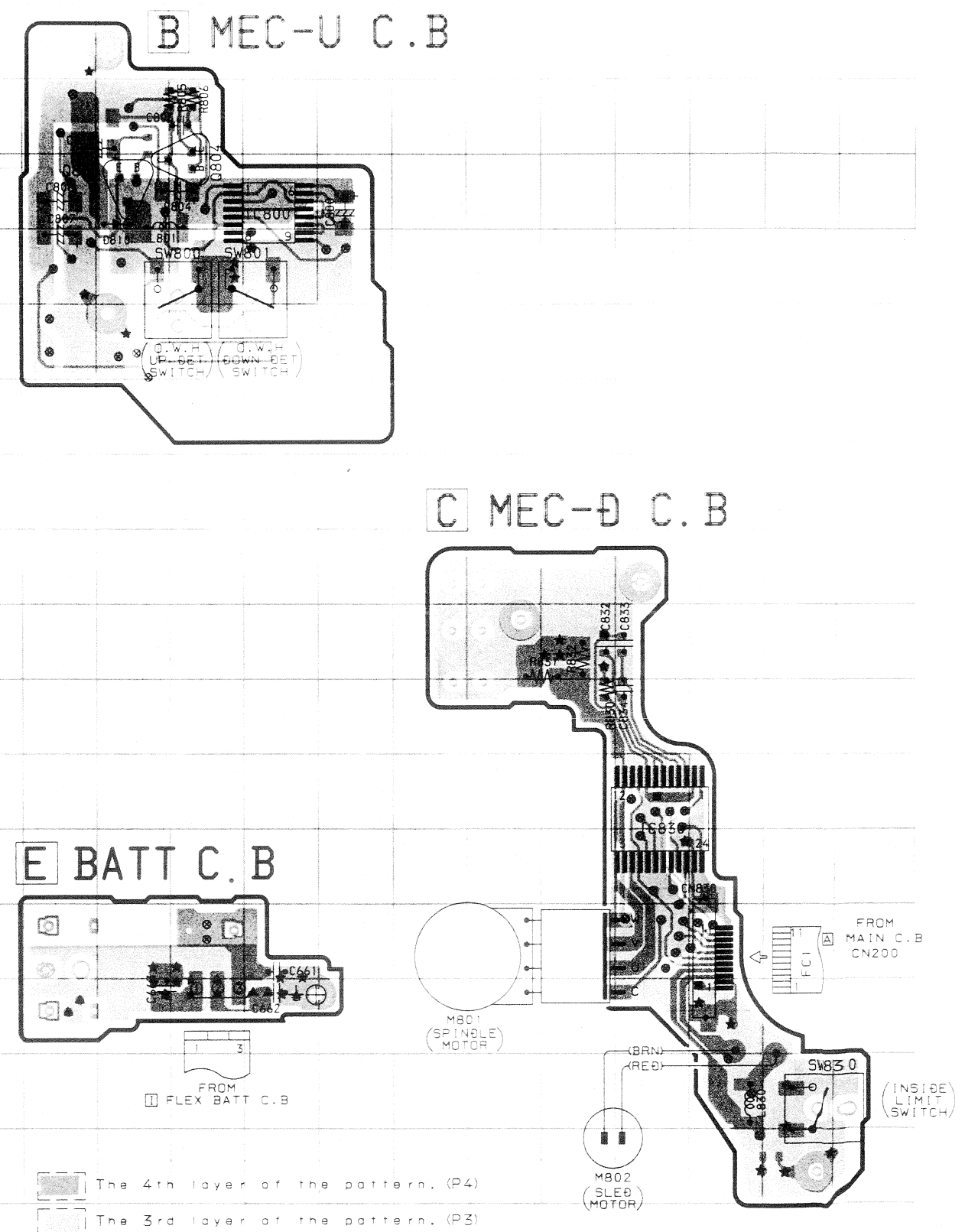
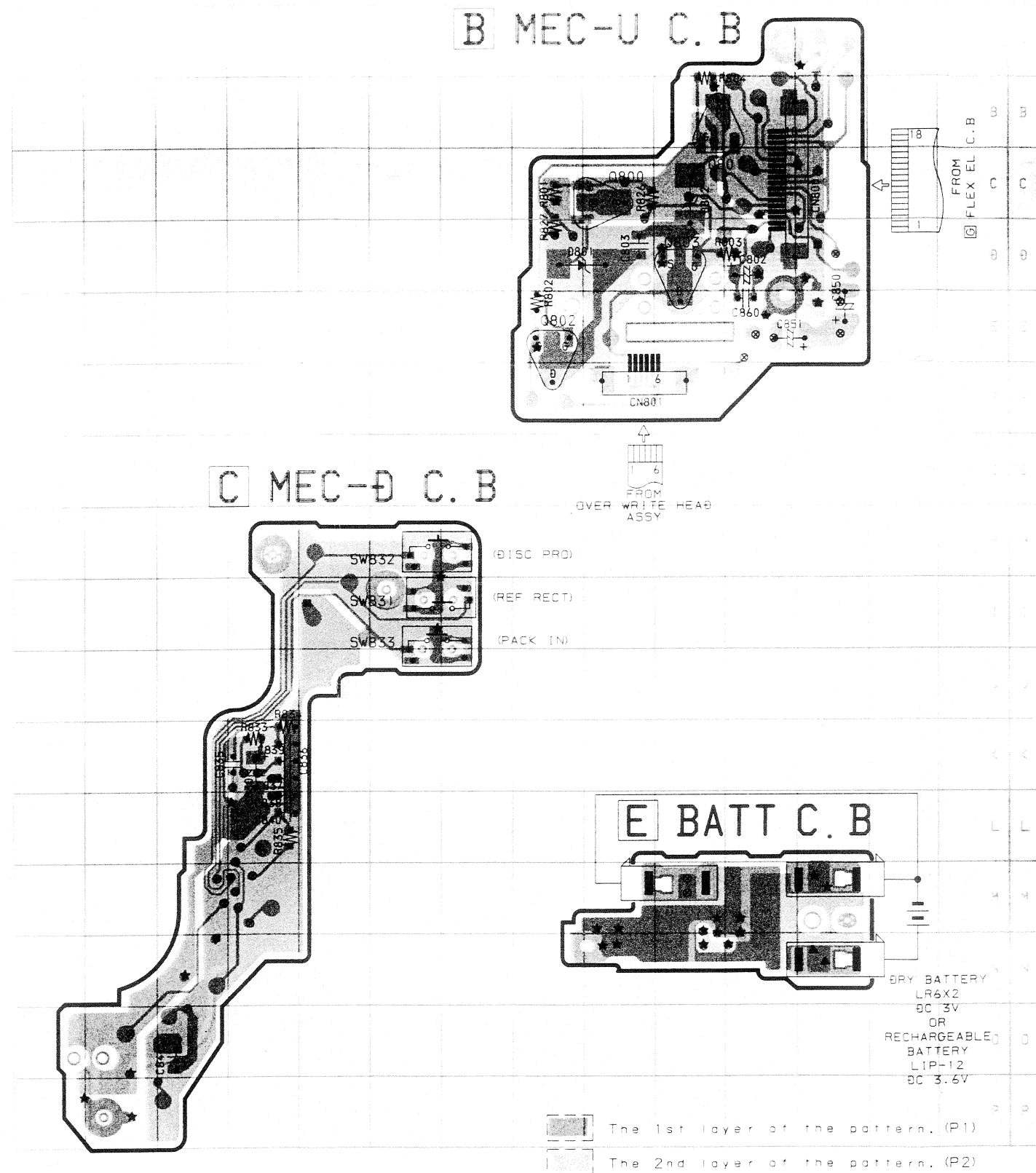


IC,

BRK  
BRK

STAR

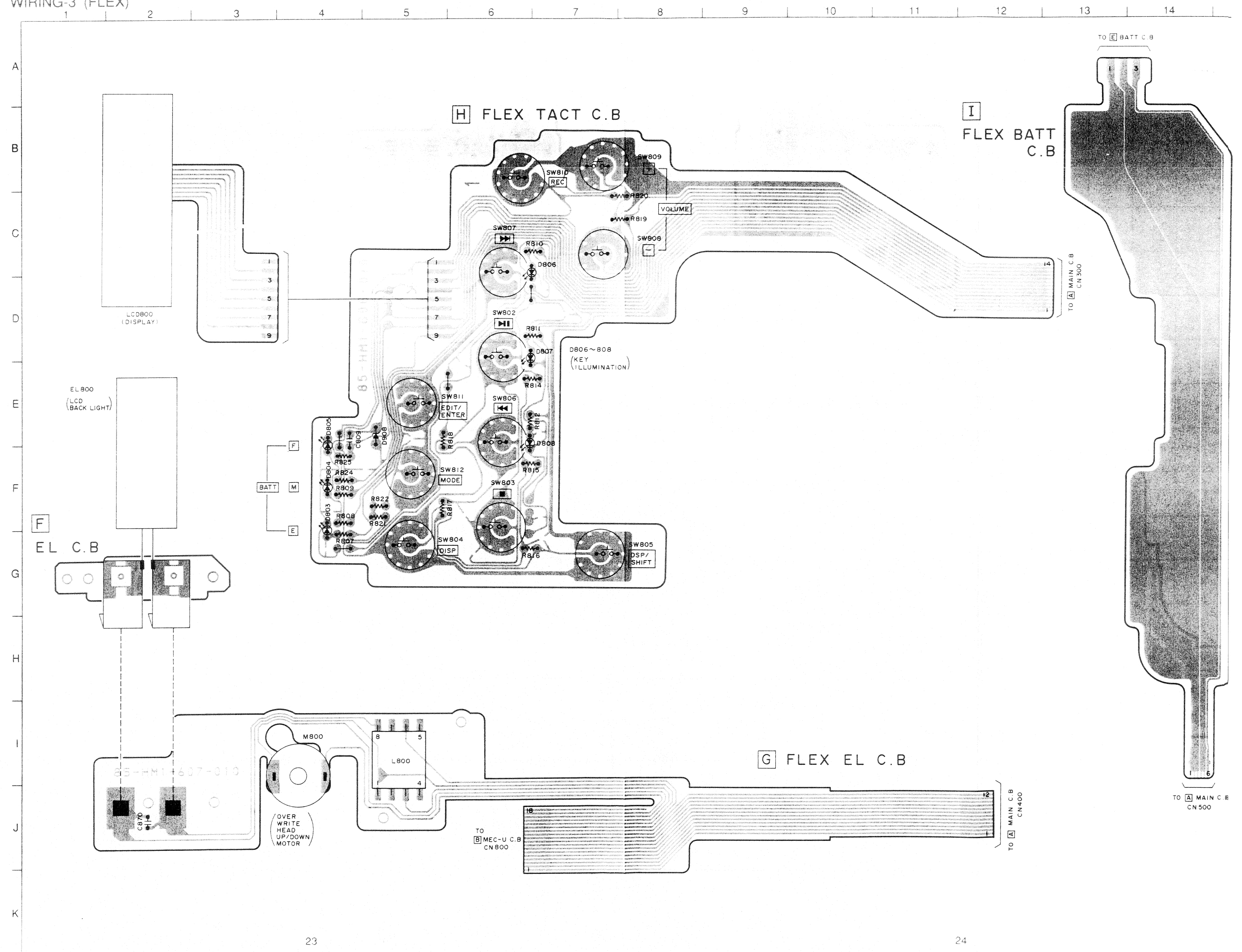
STB



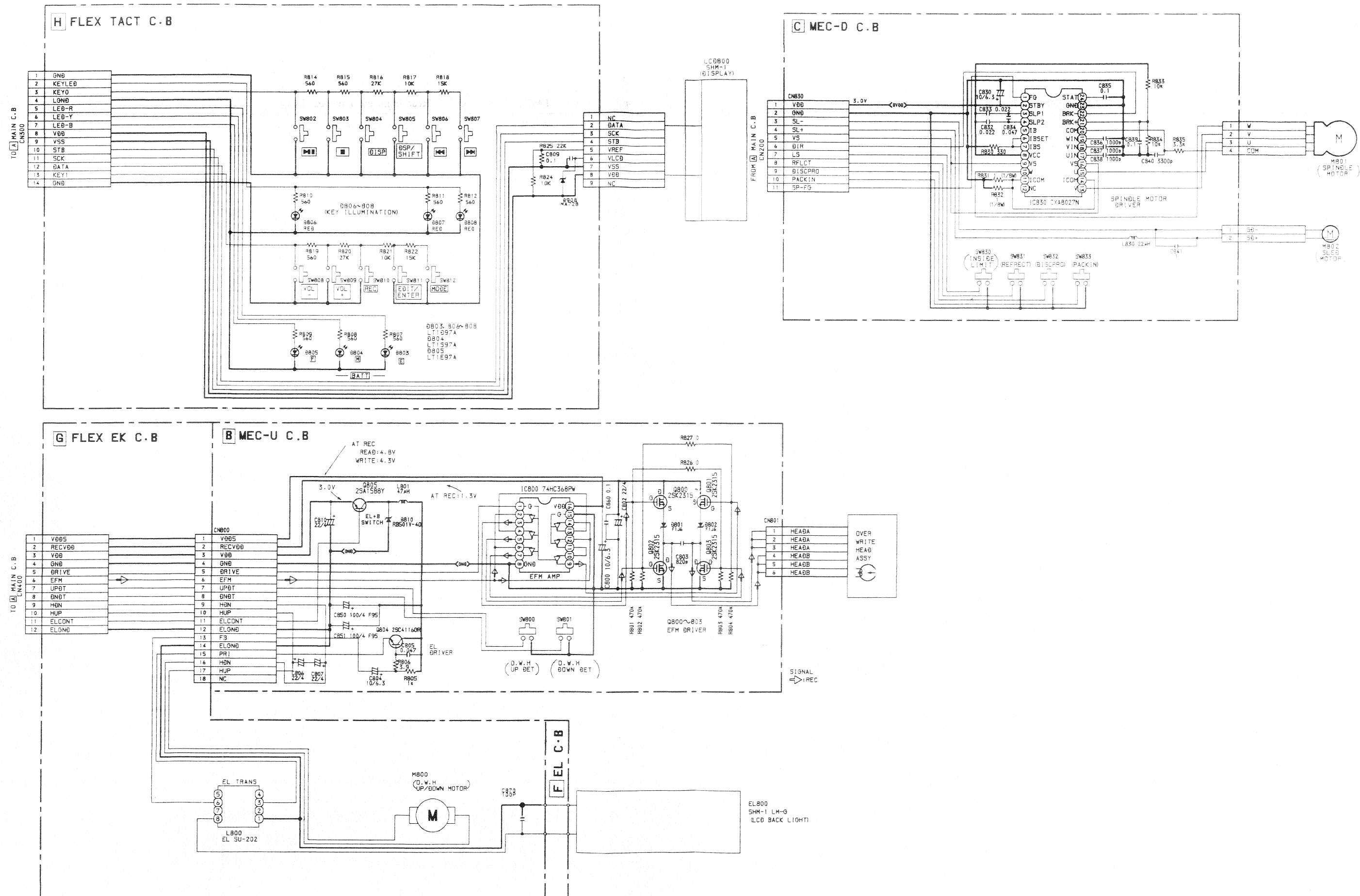
### Through-Hole Note

REC C.B, SPDL C.B and BATT C.B are the four-layer circuit boards. Different types of through-hole connection are identified as shown below.

		Conduction State				
SIGNAL			⊗		⊗	
GND	★	★	★	★	★	
+B			▲		▲	



SCHEMATIC DIAGRAM-3 (FLEX)



# IC DESCRIPTION

## IC, CXD2535BR

Pin No.	Pin Name	I/O	Description
1	FS256	O	256 Fs output. (11.2896 MHz)
2	FOK	O	Focus OK signal output. Focus OK at "H".
3	DFCT	O	Defect sense output. Defect at "H".
4	SHCK	O	Track jump sense output.
5	SHCKEN	I	Track jump sense enable input. Enable at "H".
6	WRPWR	I	Laser power switching input. Laser record power at "H". Laser playback power at "L".
7	DIRC	I	Track jump control signal.
8	SWDT	I	Microprocessor serial interface data input.
9	SCLK	I	Microprocessor serial interface shift clock input.
10	XLAT	I	Microprocessor serial interface latch input. Latch at fall-down.
11	SRDT	O	Microprocessor serial interface data output.
12	SENS	O	Internal status is output corresponding to microprocessor serial interface address.
13	ADSY	O	ADIP sync output
14	SQSY	O	Disc sub-code Q sync/ADIP sync output.
15	DQSY	O	U-bit CD or subcode Q sync output of the MD format is output when the source of the DIGITAL IN is CD or MD.
16	XRST	I	Reset input. Reset at "L".
17	TEST4	I	Test terminal. Connect to GND.
18	CLVSK	O	Clock output for spindle servo evaluation. (5.6448 MHz).
19	TEST5	I	Test terminal. Connect to GND.
20	DOUT	O	Digital audio interface signal output.
21	DIN	I	Digital audio interface signal input.
22	FMCK	O	ADIP FM demodulation clock output.
23	ATER	O	ADIP CRC flag output. Error at "H".
24	REC	I	Switching between record and playback. Record at "H". Playback at "L".
25	DVSS	I	Digital GND.
26	DOVF	I	V-bit input of the signal to be output from the DOUT terminal.
27	DODT	I	Signal to be output from the DOUT terminal and audio data input for peak level detection.
28	DIDT	O	Audio data output of the signal which is input from the DIN terminal.
29	DTI	I	Record data input from CXD2536A.
30	DTO	O	Playback data output to CXD2536A during playback. "Z" during recording.
31	C2PO	O	C2 pointer of the playback data is output during playback. V-bit of the DIGITAL IN is output during digital recording. Analog recording at "L".
32	BCK	O	64 Fs output. (2.8224 MHz).
33	LRCK	O	Fs output (44.1 kHz).
34	XTAO	O	Crystal oscillator circuit output terminal. (Inverted output of the X'TAL terminal).
35	XTAI	I	Crystal oscillator circuit input terminal. (512 Fs = 22.5792 MHz).
36	MCLK	O	Master clock output. (512 Fs = 22.5792 MHz).
37	MBCK	O	BCK inverted output.

Pin No.	Pin Name	I/O	Description
38	DVDD	—	Digital power supply.
39	WDCK	O	2 Fs output. (88.2 kHz).
40	RFCK	O	Read frame clock output. (Fs/6).
41	WFCK	O	Write frame clock output.
42	GTOP	O	Monitoring the operating status of the frame sync protection window. Frame sync protection window is open at "H".
43	GFS	O	Frame sync OK at "H".
44	XPLCK	O	PLL clock output of the EFM decoder. (98 Fs = 4.3218 MHz).
45	EFMO	O	"L" output during playback. EFM encode data) output during recording.
46	RAOF	O	RAM overflow output during playback.
47	MVCI	I	Clock input of the externally connected VCO for DIGITAL IN PLL.
48	TEST2	I	Test terminal. Connect to GND.
49	DIPD	O	DIGITAL IN PLL phase comparator output.
50	DVSS	—	Digital GND.
51	DICV	I	Voltage input to control the internal VCO for DIGITAL IN PLL.
52	DIFI	I	Input to filter when the internal VCO for DIGITAL IN PLL is used.
53	DIFO	O	Filter input when the internal VCO for DIGITAL IN PLL is used.
54	AVDD	—	Analog GND.
55	ASYO	O	Playback EFM full swing output. ("L" = Vss, "H" = VDD).
56	ASYI	I	Playback EFM comparator slice voltage input.
57	BIAS	I	Playback comparator bias current input.
58	RFI	I	Playback EFM RF signal input/.
59	AVSS	—	Analog GND.
60	CLTV	I	Master PLL for playback digital PLL and also input control voltage to internal VCO for recording EFM PLL.
61	PCO	O	Master PLL for playback digital PLL and also phase comparator output to recording EFM PLL.
62	FILI	I	Master PLL for playback digital PLL and also filter input to recording EFM PLL.
63	FILO	O	Master PLL for playback digital PLL and also filter output to recording EFM PLL.
64	PEAK	I	Peak-hold signal input of laser light.
65	BOTM	I	Bottom-hold signal input of laser light.
66	ABCD	I	Laser light amount input signal.
67	FE	I	Focus error signal input.
68	AUX1	I	Auxiliary input-1.
69	VC	I	Center voltage input.
70	ADIO	O	Monitor output of the A/D converter input signal.
71	TEST3	I	Test terminal. Connect to GND.
72	AVDD	—	Analog GND.
73	ADRT	I	Input voltage indicating upper limit of A/D converter operation range.
74	ADRB	I	Input voltage indicating lower limit of A/D converter operation range.
75	AVSS	—	Analog GND.



IC, CXD2536R

Pin No.	Pin Name	I/O	Description
1	VDD	—	Power supply terminal.
2	SWDT	I	Microprocessor serial interface, data input.
3	SCLK	I	Microprocessor serial interface, shift clock input.
4	XLAT	I	Microprocessor serial interface, latch input. Latched at fall down.
5	SRDT	O	Microprocessor serial interface, data output.
6	SENS	O	Internal status output corresponding to the address of microprocessor serial interface.
7, 8	SMD0, SMD1	I	Serial command, command mode.
9	XINT	O	Interrupt request output terminal. "L" when interrupt status occurs.
10	RCPB	I	"H" at record mode, "L" at playback mode.
11	WRMN	I	"H" at write mode, "L" at monitor mode.
12	TX	I	Enable signal input terminal of the recording data output. Enable at "H".
13	VSS	—	GND.
14~16	TST0~TST2	I	Test terminal. Connect this pin to GND.
17	XRST	I	Reset input. Reset at "L".
18~21	TS0~TS3	I	Test terminal. Connect this pin to GND.
22~24	TST3~TST5	I	
25	VSS	—	GND.
26	AIRCPB	O	ATRAC block record/playback mode output. Record mode at "H". Playback mode at "L".
27~35	TST6~TST14	O	Test terminal. Leave this pin to open.
36	OSCO	O	Crystal oscillator circuit output terminal. (Inverted output of the OSC1 terminal).
37	OSCI	I	Crystal oscillator circuit input terminal. (1024 Fs).
38	VSS	—	GND.
39, 40	TST15, TST16	O	Test terminal. Leave this pin to open.
41	DOUT	O	Record monitor output/decoded audio data output.
42	ADIN	I	Analog record input terminal. (External A/D converter output is connected to this terminal.)
43	ABCK	O	XBCK (64 Fs) output terminal to external audio block.
44	ALRCK	O	LRCK (Fs) output terminal to external audio block.
45~47	SA2~SA0	O	SRAM address bus.
48, 49	A11, A10	O	RAM address bus.
50	VSS	—	GND.
51	VDD	—	Power supply terminal.
52~55	A03~A00	O	RAM address bus.
56~60	A04~A08	O	
61	XOE	O	RAM output enable.
62	XCAS	O	RAM CAS output.
63	VSS	O	GND.
64	XCS	O	RAM chip select. DRAM at "H". SRAM at "L".
65	A09	O	RAM address bus.
66	XRAS	O	RAM RAS output.

Pin No.	Pin Name	I/O	Description
67	XWE	O	RAM write enable.
68, 69	D1, D0	I/O	RAM data bus.
70~74	D2~D6	I/O	
75	VSS	—	GND.
76	D7	I/O	RAM data bus.
77	ERR	I/O	Data input/output terminal for C2PO exclusive RAM.
78	EXTC2R	I	Selector of C2PO exclusive RAM. "H" to use. "L" not to use.
79	BUSY	O	Busy output of RAM access. RAM access at "H".
80	EMP	O	The signal output indicating immediately before empty or full of the ATRAC data.
81	FUL	O	The signal output indicating immediately before full or empty of the ATRAC data.
82	EQL	O	ATRAC data empty. ("H" when ASC = DSC).
83	MDLK	O	Indicating main/sub of the record/playback data. Sub or linking at "H". Main at "L".
84	CPSY	O	Sync input to be inserted internally.
85, 86	CTMD1, CTMD0	O	Internal counter mode output.
87	SPO	O	512 Fs output.
88	VSS	—	GND.
89	MDSY	O	Sync detection output of the main data.
90	LRCK	I	LRCK (Fs) input terminal from the EFM encoder/decoder.
91	BCK	I	BCK (46 Fs) input terminal from the EFM encoder/decoder.
92	C2PO	I	C2PO input terminal from the EFM encoder/decoder.
93	DATA	I/O	Data input/output terminal from the EFM encoder/decoder.
94	DIDT	I	Digital recording input terminal.
95	DODT	O	Record monitor output/decode audio data output.
96	DIRCPB	O	Record/playback mode output to the EFM encoder/decoder. Record mode at "H". Playback mode at "L".
97	MIN	I	External monitor signal input terminal.
98	TST17	I	Test terminal. Connect this pin to VDD.
99	TST18	O	Test terminal. Leave this pin to open.
100	VSS	O	GND.

Pin No.	Pin Name	I/O	Description
1	VC	O	Vcc/2 voltage output.
2	A	I	Main beam servo signal A, current input.
3	B	I	Main beam servo signal B, current input.
4	C	I	Main beam servo signal C, current input.
5	D	I	Main beam servo signal D, current input.
6	E	I	Main beam servo signal E, current input.
7	F	I	Main beam servo signal F, current input.
8	FI	I	EF balance adjustment.
9	FO	O	EF balance adjustment.
10	PD	I	Amount of light, monitoring signal input.
11	APCREF	I	Reference voltage input for laser power setting.
12	TEMPI	I	External temperature sensor is connected to this terminal.
13	GND	—	GND.
14	AAPC	O	APC output.
15	TST0	O	Test terminal. Open.
16	TEMPR	O	External temperature sensor is connected to this terminal. Reference voltage is output.
17	TST1	I	Test terminal. Connected to Vcc.
18	SWDT	I	Microprocessor serial interface, data input.
19	SCLK	I	Microprocessor serial interface, shift clock input.
20	XLAT	I	Microprocessor serial interface, latch input. Latch at "L".
21	VREF	O	Reference voltage output.
22	TST2	O	Test terminal. Open.
23	TST3	—	Test terminal. Open.
24	VCC	—	Power supply terminal.
25	TST4	I	Test terminal. Connected to Vcc.
26	TE	O	Tracking error output.
27	TLB	—	External capacitor for low-boosting the tracking error signal, is connected to this terminal.
28	CSLED	—	External capacitor of low-pass capacitor for the sled error signal, is connected to this terminal.
29	SE	O	Sled error signal output.
30	ADFM	O	ADIP FM signal output.
31	ADIN	I	ADIP signal comparator input.
32	ADAGC	—	External capacitor for ADIP AGC is connected to this terminal.
33	ADFG	O	ADIP 2 binary signal output.
34	AUX	O	I3 output/temperature signal output. The two signals are selected by the serial command.
35	FE	O	Focus error signal output.
36	FLB	—	External capacitor for low-boosting the focus error signal, is connected to this terminal.
37	ABCD	O	Light amount signal output from the main beam servo detector.
38	BOTM	O	RF/ABCD bottom hold signal output.

Pin No.	Pin Name	I/O	Description
76	SE	I	Sled error signal input.
77	TE	I	Tracking error signal input.
78	AUX2	I	Auxiliary input-2.
79	DCHG	I	Connect to GND.
80	TEST6	I	Test terminal. Connect to GND.
81	TEST1	I	Test terminal. Connect to GND.
82	ADFG	I	ADIP binary FM signal (22.05 ±1 kHz) input.
83	TS25	I	Test terminal. Connect to GND.
84	LDDR	O	Laser drive output.
85	TRDR	O	Tracking servo drive output (−).
86	TFDR	O	Tracking servo drive output (+).
87	FFDR	O	Focus servo drive output (+).
88	DVDD	—	Digital power supply.
89	FRDR	O	Focus servo drive output (−).
90	FS4	O	4 Fs output. (1764 kHz).
91	SRDR	O	Slid servo drive output (−).
92	SFDR	O	Slid servo drive output (+).
93	SPRD	O	Spindle servo drive output (−).
94	SPFD	O	Spindle servo drive output (+).
95	DCLO	O	Serial data output for spindle servo evaluation.
96	DCLI	I	Serial data input for spindle servo evaluation.
97	XDCL	O	Serial data load signal output for spindle servo evaluation.
98	OFTRK	O	OFF-track signal output. OFF-track at "H".
99	COUT	O	Track jump count signal output.
100	DVSS	—	Digital GND.



Pin No.	Pin Name	I/O	Description
39	PEAK	O	RF/ABCD peak hold signal output.
40	RFAGC	—	External capacitor for RF AGC is connected to this terminal.
41	RF	O	RF equalizer output.
42	ISSET	—	BPF (fo = 702 kHz, 22 kHz) and RF equalizer setting.
43	AGCI	I	RF AGC input.
44	RFO	O	RF amplifier output. Eye pattern check point.
45	MORFI	I	The input signal in which the RF signal from groove and the RF signal are mixed.
46	MORFO	O	RF signal (I-J) output from groove.
47	I	I	I-V converted RF signal I input.
48	J	I	I-V converted RF signal J input.

#### IC, YSS231

Pin No.	Pin Name	I/O	Description
1	VSS	—	GND.
2	MCLK	I	Clock input.
3	(NC)	—	
4	L/R	O	Digital audio output word clock.
5	BCO	O	Digital audio output bit clock.
6	(NC)	—	
7	SDO	O	Digital audio output serial data.
8	VDD	—	Power supply terminal.
9	SDI	I	Digital audio input serial data.
10	BCI	I	Digital audio input bit clock.
11	(NC)	—	
12	SDSY	I	Digital audio input word clock.
13	CDI	I	Microprocessor interface serial data.
14	SCK	I	Microprocessor interface serial clock.
15	CS	I	Microprocessor interface chip select.
16	IC	I	Initial clear input.

IC, CX81848

Pin No.	Pin Name	I/O	Description			
1	ATT2	O	1 +14dB	1 +26dB	0 +38dB	Switching between MIC amp or Gain
2	ATT1	O	1	0	0	
3	MIC-O	O	MIC/LINE identification output. H: MIC.			
4	AMUTE	O	Analog mute. H: MUTE.			
5	INSEL	I	Analog/digital input select. H: Analog.			
6	PLG-I	I	Presence of HP plug. L: Plug is present.			
7	MIC-I	I	MIC/LINE select switch judgment. H: MIC.			
8	PHONE	I	LINE/PHONE select switch judgment. H: LINE.			
9	DISCPRO	I	Disc recording enabled switch judgment. L: Enabled.			
10	RFRCT	I	Disc reflection factor sensor switch judgment. L: Low reflection.			
11	B-CAS	O	DRAM self-refresh control.			
12	LS	I	The sled's innermost circumference detection.			
13	DNDT	I	Over-write head down detection.			
14	UPDT	I	Over-write head up detection.			
15	V-FLAG	I	Subcode V flag input included in the digital IN signal.			
16	DC	I	Not used.			
17	PACKIN	I	Jacket presence sensor switch judgment. H: Jacket present.			
18	VRLACT	O	Record VOL control LACT.			
19	VRDT	O	Record VOL control DATA.			
20	VRCLK	O	Record VOL control CLK.			
21	B-RAS	O	DRAM self-refresh control.			
22	KEY2CTL	O	Remote control (Key2) Wake up control. "L" during sleep.			
23	CHG-I	O	Charge control. "H" during charging.			
24	VDET	O	Not used.			
25	DRIVE	O	Record current control. "L" during recording.			
26	LED-B	O	LED indicating battery's remaining power signal. (blue).			
27	LED-Y	O	LED indicating battery's remaining power signal. (yellow).			
28	LED-R	O	LED indicating battery's remaining power signal. (red).			
29	DAPON	O	D/A converter ON/OFF control. "L": OFF. Open drain.			
30	DMUTE	O	Not used. Open drain.			
31	REC-P	O	Recording circuit power supply ON/OFF control. L: ON. Open drain.			
32	HDN	O	Over-write head DOWN control. OPEN: head DOWN. Open drain.			
33	HUP	O	Over-write head UP control. OPEN: head UP. Open drain.			
34	ELCONT	O	EL ON/OFF control. L: ON. Open drain.			
35	LCDSW	O	LCD ON/OFF control. L: ON. Open drain.			
36	LEDSW	O	Key light ON/OFF control. L: ON. Open drain.			
37	MP	I	Connected GND.			
38	SRST	I	System reset. L: reset.			
39	DGND	—	Digital GND.			
40	XTALO	O	Inverter oscillating system clock of this microprocessor. f = 12 MHz.			
41	XTALI	I				

Pin No.	Pin Name	I/O	Description
42	CS0	I	Connected to 43 pin SRDT.
43	SRDT	I	Serial data input.
44	SWDT	O	Serial data output.
45	SCLK	O	Serial clock output.
46	XLAT	O	Serial data strobe output.
47	XRST0	O	CXA1981, CXD2535 reset control. L: reset.
48	XRST1	O	CXD2536 reset control. L: reset.
49	NC	O	Not used.
50	AVSS	—	A/D converter GND.
51	AVREF	—	A/D converter upper limit set.
52	AVDD	—	A/D converter VDD.
53	KEY0	I	PLAY, STOP, DISP, DSP, B-SKIP, F-SKIP key judgment inputs.
54	KEY1	I	VOL DOWN, VOL UP, REC, EDIT, MODE key judgment inputs.
55	KEY2	I	Remote control key judgment inputs.
56	BATCH1	I	Battery's remaining power detected signal input.
57	BATCH2	I	Battery type judgment input.
58	BATCH3	I	Input signal indicating remaining power to be charged.
59	JAPAN	I	Japan or overseas specification judgment input. H: Japan.
60	BATCH4	I	System power check input.
61	COUT	I	Track jump count input.
62	SP-FG	I	Spindle FG input.
63	SHCK	I	Shock detection input.
64	FOK	I	FOCUS-ON input. H: FOCUS-ON.
65	GFS	I	Guard frame sync input. H Frame sync OK.
66	SENS	I	CXD2535 internal status monitor input.
67	HOLD	I	HOLD key input. L: HOLD.
68	TEST	I	Test mode identification. After reset, L: TEST mode.
69	PLG-O	O	PLG-I pull-up output to prevent remote control from misoperation at pin-6.
70	EXTVCO	O	VCO ON/OFF control. L: ON.
71	P-CONT	O	System power supply ON/OFF control. H: ON.
72	RFSW	O	RF system power supply ON/OFF control. L: ON.
73	VOCK	O	Voltage control when audio output is "LINE". PWM output.
74	HPWM	O	PWM control during head UP/DOWN.
75	DQSY	I	SUB-Q sync input during digital recording.
76	XINT	I	CXD2536 interrupt request input. L: interrupt request.
77	STB	O	LCD serial data strobe output.
78	SWDT2	O	DSP, LCD serial data output.
79	SCLK2	O	DSP, LCD serial clock output.
80	SQSY	I	EFM subcode Q sync and ADIP sync input.
81	CS	O	DSP serial data strobe output.
82	XRST2	O	DSP reset output. L: reset.

Pin No.	Pin Name	I/O	Description
83	HP VOLT	O	Voltage control when audio output is "PHONE". "H" during PHONE.
84	TXI	I	Inverter for oscillating clock for watch and during sleep. $f = 32.768 \text{ kHz}$
85	TXO	O	
86	VSS	—	GND.
87	VDD	—	VDD.
88	NC	—	Connected VDD.
89	SHCKEN	O	Shock detection request output.
90	WRPWR	O	Laser power control to CXD2535. H: laser power.
91	DIRC	O	Track jump control.
92	SMD0	O	CXD2536 serial data control mode.
93	SMD1	O	CXD2536 serial data control mode.
94	RCPB	O	CXD2536 record/playback control. H: record.
95	WRMN	O	ATRAC encode and external RAM write control. H: acknowledged.
96	TX	O	CXD2536 record data output enable control. H: acknowledged.
97	MOD	O	Light-emitting laser diode RF super-imposing control.
98	OPMUTE	O	Light-emitting laser diode ON/OFF control. H: ON.
99	ADPON	O	A/D converter ON/OFF control. H: ON.
100	EMPH	O	Emphasis ON/OFF control. H: ON.

## TEST MODE

The AM-F3 has the built-in TEST MODE to be used for adjustment and operation check.

### 1. How to Activate and Cancel the TEST MODE, and Caution of usage.

#### (1) How to Active the TEST MODE.

- 1) Short-circuit the TEST LAND (soldering lands) using solder.
- 2) Turn on the main power and press the RESET SW. Check that all LCD's and LED's turn on the following characters and displayed sequentially. "Welcome to Mini Disk World ....."

#### (2) How to Cancel the TEST MODE.

- 1) Turn off the main power. Remove soldering from the TEST LAND.

#### (3) Caution

- 1) The TEST MODE takes place ignoring all mechanical abnormal actions. Therefore, if a machine should show any abnormal actions, remove the main power immediately.
- 2) Music data cannot be recorded nor played back during the TEST MODE.
- 3) When down condition the OWH (Over Write Head), can not eject. As EJECT lever is lock.
- 4) While TEST MODE and EJECT condition (disk holder is open) , OWH can move up and down. Whoever should care disk (during test mode) when OWH down position. If so OWH get damage.

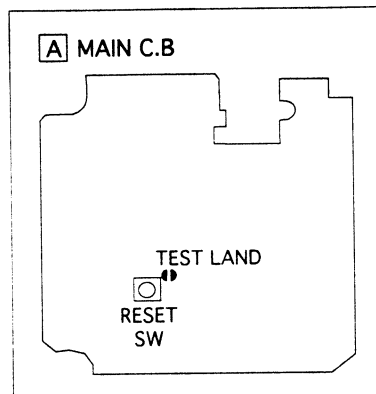


fig-1 Position of TEST LAND and RESET switch

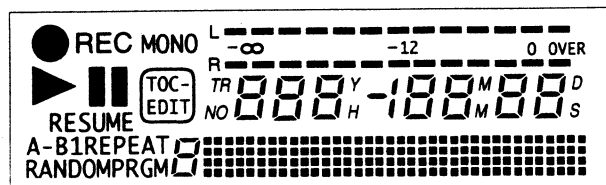


fig-2 All segments of LCD is illuminated

### 2. The Items Which Can Be Checked While Activating the TEST MODE.

#### (1) Displays

All LCD's and LED's turn on.

#### (2) Audio Output.

The audio PB circuits (DAC, LINE amplifier and HP amplifier) can be checked. LINE amplifiers output and HP amplifiers output as Follows :

- \* 1kHz sine wave is -12dB is output from LINE OUT.

When press any operation key, then stop audio output. How to return audio output is press the "RESET" key and start condition at TEST MODE.

\* Thereafter items change mode at stand by condition of servo. If a set is the first condition of TEST MODE (all light LCD display), press the "STOP" key, become stand by condition of servo.

### 3. How to check the Audio Recording using the Record Monitor Function.

The audio recording circuit (MIC amplifier, line amplifier and ADC = AD converter) can be checked as follow.

(Input the digital audio source or analog audio source from external source in STOP mode. Press REC key. The RECORD monitor state is established in accordance.

### 4. How to Check the Switches

The Following switches (a set and inside of a mechanism) can be checked as follows by monitoring the LCD :

Switch Name	Switch Status	LCD Display
REC PROTECT	"ON" when WRITE PROTECT tab is closed (record enable) of a DISC	REPEAT
REFLECT	"ON" when a disk is high reflection (CD) type	B
DISC IN	"ON" when DISC is IN	L R — ∞
INNER	"ON" when Pick-up position is the most inside (LIMIT SW is ON)	TR NO
UP DET	"ON" when OWH (Over Write Head) moved UP	MONO
DOWN DET	"ON" when OWH (Over Write Head) moved DPWN	TOC- EDIT
HOLD	HOLD SW is "ON"	RESUME
INPUT SEL	"ON" when optical cable is connected (But LCD light is OFF)	A

### 5. How to Check Movement of the OWH (Over-Write Head)

If VOL key is pressed while the disk drive is in STOP mode, OWH movement can be checked.

If "+" key is pressed, the OWH starts moving up. If "-" key is pressed, the OWH starts moving down.

\*Caution\*

- \* Do not try to move down the OWH while a CD disk is being inserted.
- \* With care insert disk when OWH down position. If so OWH get damage.

### 6. How to Check the SLED Motion.

Sled motor and Pick-up movement can be check by <> key and <<> key.  
(<> key : move to out side, <<> key : move to in side.)

### 7. How to Check the Laser Power

While the MD disk drive is in STOP mode, press EDIT/ENTER key. Every pressing of the EDIT/ENTER key advances in the order : OFF → CD-R → MO-R → 1/2 LASER → MO-W → OFF and repeat this order. The laser power status appears also on the LCD level meter. It does not measure and show the actual laser power emitted. It shows the internal operation mode.

\* This TEST MODE can be able to use Laser power adjustment.

(See pages 44, 45)

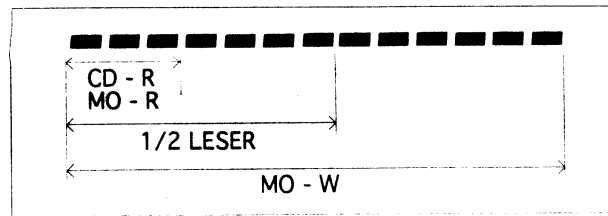


fig-3 Level meter display of LCD

## 8. How to Check Servo Operation

### (1) How to Check Focus Search and Spindle kick.

- 1) If PLAY key is pressed without inserting a disk. Can check Focus Search and Spindle kick. (Repeat until press STOP key)

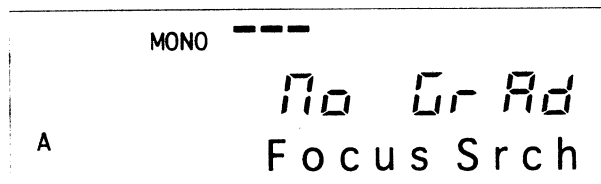


fig-4

- 2) If PLAY key is pressed with a disk inserted, Focus search and Spindle kick become on.

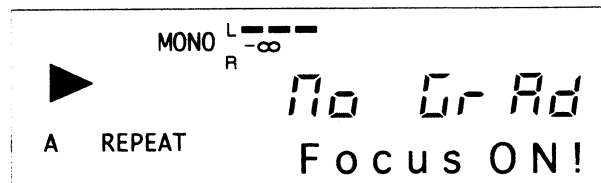


fig-5 MO Disk

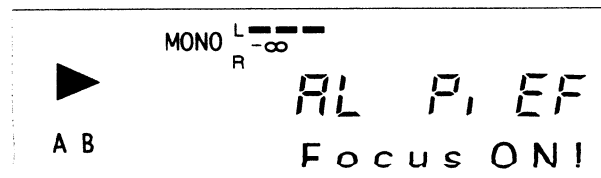


fig-6 CD Disk

### (2) How to Check ALL Servo ON

- 1) After completing step (1) (Focus Search and Spindle Kick) operation, press MODE key. Tracking gain and Sled servo become ON, and all Servo will start then Display of LCD shows Disk Address and audio signal output is 1kHz.
- 2) To press the MODE key after above operation 1), Auto gain will work.

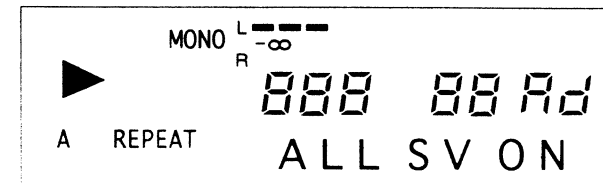


fig-7 MO Disk

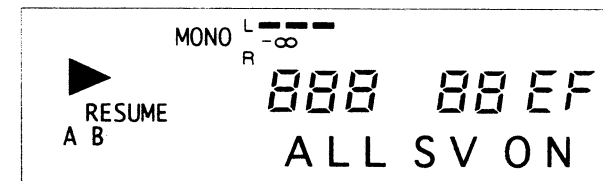
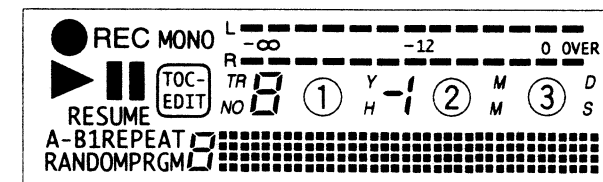


fig-8 Aluminum (CD) Disk

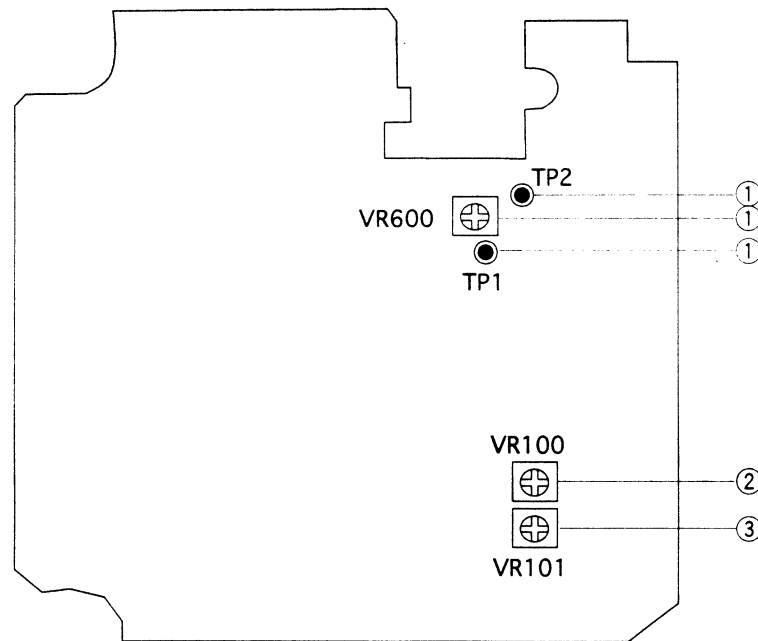
\* This mode will show Disk type (MO or Aluminum (CD)) and condition on LCD



		①	②	③
MO	Pit	No P, EF		
	Groove	No Gr Ad		
AL		AL P, EF		

fig-9

- 1) Disk type MO (can recording) or AL (Aluminum (CD))
- 2) Track kinds (type) Groove or Pit
- 3) LCV servo EFM or ADIP

**A MAIN C.B**

\*Establish the test mode to perform the following adjustments.

**1. Power Supply Check**

Setting: · Test point : TP①,②  
· Adjustment point : VR600

Method: Adjust VR600 so that the voltage between TP1 and TP2 becomes  $3.0 \pm 0.05V$ .

**2. Laser Power Adjustment**

Setting: · Test point : Laser output of pick up  
· Adjustment location : VR100

Method: Use a laser power meter. Adjust VR100 so that the laser power is  $3.40 \pm 0.50mW$  in the 1/2 MO-W mode. After Adjust 1/2 MO-W so that the laser power is  $6.80 \pm 0.10mW$  in the MO-W mode. With care during adjustments, if so pick-up get damage when laser output is more than  $7.00mW$ .

**3. FE Balance Adjustment**

Setting: · Test point : Check the Display of LCD  
· Adjustment location : VR101  
· Test Disk : SONY MDW-60 (MO)

Method: ① Turn off the HOLD SW.  
② Move pick up the most inside to a little outside. (Press key, and move outside.)  
③ Press the "PLAY" key → "EDIT" key → "DISP" key  
④ Adjust VR101 so that the display of LCD changes around a center point at \$ 80.

Caution : A range of Moving numbers are between \$ 71 and \$ 8E

**4. Focus / Tracking /Thread Gain Check**

Setting: · Test Disk : SONY TGYS-1 (CD)

Method: ① Turn on HOLD SW.  
② Press the "PLAY" key → "MODE" key → "MODE" key → "STOP" key.  
③ Press the "DISP" key 3 times.  
④ Check display of LCD is limit by the following.

Gf ① t ② s ③

① Focus Gain : 21 ~ 43

② Tracking Gain : 10 ~ 25

③ Thread Gain : 10 ~ 25

\* Thereafter items are not usually use at adjustments and checks.

**5. Error Rate****5 - 1 MO error Rate Check**

Setting: · Test Disk : SONY MDW-60 (MO)

Method: ① Turn off HOLD SW.  
② Move pick up the most inside to a little outside. (Press key, and move outside.)  
③ Press the "VOLUME" key and down the OWH. (Over Write Head.) (Display "Toc-EDIT" the LCD.)  
④ Press the "REC" key → "PLAY" key. (Display "Focus ON" the LCD.)  
⑤ Press the "MODE" key twice. (Display "ALL SV ON" the LCD.)  
⑥ Press the "REC" key once more, and start at 600 cluster. (LCD display is start at "600".)  
⑦ Record about 15 second.  
⑧ Press the "STOP" key. (Cluster Go back recording start position, and stop.)  
⑨ Press the "VOLUME" key and up the OWH. (Over Write Head.) (Display "MONO" the LCD.)

**5 - 2 Error rate Check**

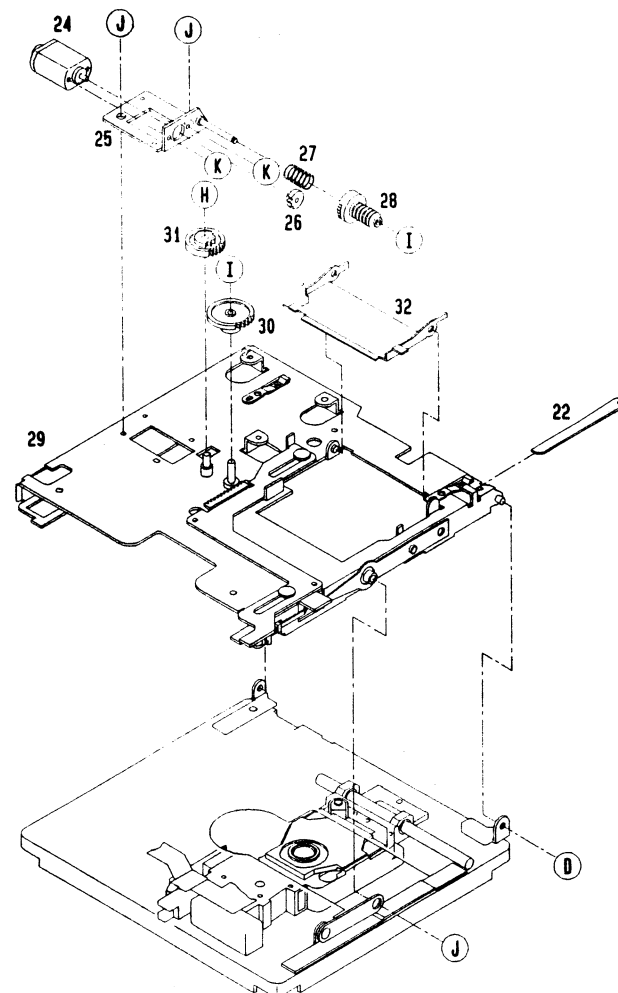
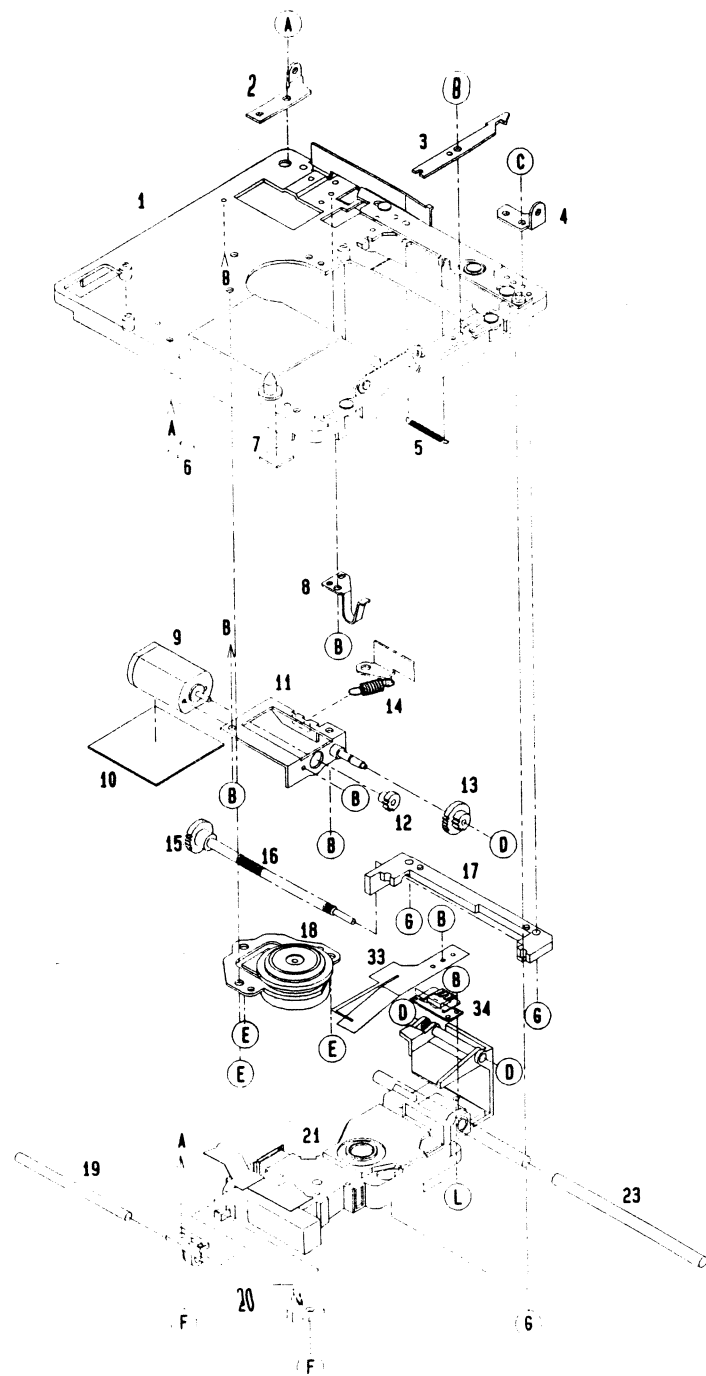
Setting: · Test Disk : SONY MDW-60 (MO)

Method: ① After recording, press the "PLAY" key → "MODE" key → "DISP" key.  
② Check display less than "Err 0030" of LCD.

**5 - 3 MO PIT Playback error Rate Check**

Setting: · Test Disk : SONY MDW-60 (MO)

Method: ① Move pick-up to the most inside. (Press the " " key.)  
② Turn on the "HOLD" key.  
③ Press the "PLAY" key → "MODE" key → "DISP" key.  
④ Check display less than "Err 0030" of LCD.



This exploded view diagram illustrates the assembly of a portable electronic device, likely a portable television or video recorder. The components are numbered 1 through 39, and letters A through I are used to denote specific sub-assemblies or groups of parts. The diagram shows the following components and their assembly sequence:

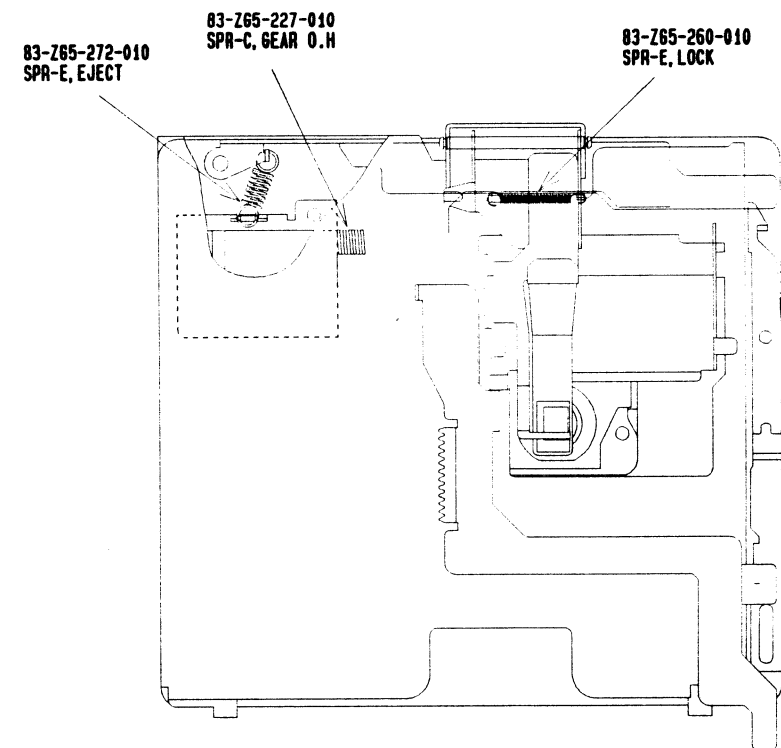
- Top Housing (11):** The main upper enclosure, shown with its front panel (10) and side panels (9, 8).
- Internal Components:**
  - EL800 (14):** Electro-luminescent display unit.
  - EL C.B. (13):** Electro-luminescent control board.
  - FLEX TACT C.B. (12):** Flexible touch control board.
  - LCD800 (11):** Liquid crystal display unit.
  - BATT C.B. (18):** Battery control board.
  - MEC-D C.B. (19):** Main electronic control board.
  - SH, PWB MAIN (15):** Main printed wiring board with SH (Speaker Head) and PWB (Printed Wiring Board) components.
  - MAIN C.B. (16):** Main control board.
  - JACK C.B. (17):** Jack control board.
- Bottom Housing (36):** The main lower enclosure, shown with its front panel (35) and side panels (34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1).
- Assembly Sequence:** The diagram shows the assembly sequence from the bottom housing (36) up to the top housing (11). The sequence is indicated by the numbers 1 through 39, and the letters A through I.

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO.	PART NO.	カナリ NO.	DESCRIPTION	REF. NO.	PART NO.	カナリ NO.	DESCRIPTION
1	85-HM1-201-010		CHAS ASSY, TOP	26	85-HM1-229-010		SPR-E, EJECT
2	85-HM1-250-010		CUSH-R, CHAS	27	85-HM1-240-010		SPR-T, LOCK
3	85-HM1-225-010		GUIDE, LCD	28	85-HM1-235-310		FRAME ASSY, EJECT
4	85-HM1-004-010		WINDOW, DISP	29	85-HM1-221-010		FRAME, FRONT
5	85-HM1-006-010		KEY, CONT MAIN	30	85-HM1-223-010		HLDR, JACK
6	85-HM1-007-010		KEY, CONT VOL	31	85-HM1-231-010		SH, JACK
7	85-HM1-012-010		GUIDE, CONT R	32	85-HM1-232-010		SH, LINE
8	85-HM1-009-010		KEY, CONT DISP	33	85-HM1-013-110		KNOB, SL EJECT
9	85-HM1-011-010		GUIDE, CONT L	34	85-HM1-017-010		KNOB, SL A
10	85-HM1-008-010		KEY, CONT INDEX	35	85-HM1-233-010		SH, REAR
11	85-HM1-001-010		PANEL, TOP	36	85-HM1-002-010		PANEL, BOT<A&E1>
12	85-HM1-005-110		HLDR, BAT	36	85-HM1-018-010		PANEL, BOT E<A&E1>
13	85-HM1-010-010		KEY, CONT REC	37	85-HM1-246-110		SH, ADHESIVE FLK
14	85-HM1-227-010		SPR-P, TOP	38	85-HM1-245-110		SH, ADHESIVE TR
15	85-HM1-003-010		FRAME, CENTER	39	85-HM1-251-110		CUSH, TR
16	85-HM1-224-010		DMPR, G	A	87-067-393-510		S-SCREW, -1.4-1.4
17	85-HM1-220-010		FRAME, SIDE R	B	87-078-214-010		S-SCREW, 1.4-1.6NL BLK
18	85-HM1-214-210		FRAME ASSY, SIDE L	C	87-067-746-010		S-CREW-SERR M1.4-2
19	85-HM1-226-110		BAT-CONTACT, BOX	D	87-067-871-010		S-SCREW, 1.4-3.5(CRN)
20	85-HM1-016-010		KNOB, SL BAT	E	85-HM1-234-010		S-SCREW, DAMPER
21	85-HM1-222-010		DMPR, PLATE	F	87-067-388-010		S-SCREW, +1.4-0.8-1
22	85-HM1-248-010		SH, BAT	G	87-078-213-010		S-SCREW, 1.4-0.4-1 NL
23	85-HM1-242-010		SH, MECHA	H	87-067-494-010		V-1.7-4
24	85-HM1-015-010		STOPPER, BAT	I	85-HM1-239-010		S-SCREW, 1.7-2.0 BLK
25	85-HM1-230-010		SPR-E, BAT	J	87-067-589-010		V-1.4-1.4 BLK NLOCT



# SPRING APPLICATION POSITION



# MD MECHANISM PARTS LIST 1 / 1

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-ZG5-280-010		CHAS. B ASSY	26	83-ZG5-222-010		GEAR, MOTOR O.H.
2	83-ZG5-255-010		PLATE, PIVOT A	27	83-ZG5-227-110		SPR-C, GEAR O.H.
3	83-ZG5-271-010		SPR-P, EJECT	28	83-ZG5-223-010		GEAR, O.H.C
4	83-ZG5-256-010		PLATE, PIVOT B	29	83-ZG5-288-010		HLDR, CTRG B ASSY
5	83-ZG5-260-010		SPR-B, LOCK	30	83-ZG5-220-010		GEAR, O.H.A
6	87-085-246-110		SH, 5-3.5-0.05	31	83-ZG5-221-010		GEAR, O.H.B
7	87-085-245-110		SH, 5-5-0.2	32	83-ZG5-216-010		LVR, KICK O.H.
8	83-ZG5-265-010		SPR-P, GEAR P.U.	33	87-046-415-010		HEAD, RF320-74H
9	87-045-374-010		MOT, FFM20VK-7Z170	34	83-ZG5-247-110		SPR-P, INSERT ASSY
10	83-ZG5-277-010		SH, 20-12-0.05	A	87-232-501-310		Q+1.4-1.6 BLK
11	83-ZG5-261-010		HLDR, MOTOR P.U. ASSY	B	87-261-500-310		V+1.4-1.4 BLK(1)
12	83-ZG5-268-010		GEAR, MOTOR P.U.	C	87-237-501-310		Q+1.4-1.6 GLD
13	83-ZG5-267-010		GEAR, P.U.B	D	87-078-123-010		PW+1.1-2.5-0.3 C
14	83-ZG5-272-010		SPR-E, EJECT	E	87-262-521-310		V+1.1-1.6 BLK
15	83-ZG5-266-010		GEAR, P.U.A	F	87-262-505-310		V+1.4-2.5 BLK(3)
16	83-ZG5-254-110		SHAFT, P.U GUIDE C	G	87-262-507-310		V+1.4-3.0 BLK
17	83-ZG5-253-110		HLDR, P.U GUIDE B	H	87-067-676-010		PW1.1-2.5-0.3 CUT
18	87-045-373-110		MCT, SPINDOL	I	87-067-569-010		PW+1.33-2.5-0.25 SLT
19	83-ZG5-250-010		SHAFT, P.U GUIDE A	J	87-262-500-310		V+1.4-1.4 BLK
20	83-ZG5-252-110		HLDR, P.U GUIDE A	K	87-078-120-010		LV+1.2-1.5
21	83-ZG5-297-010		PICK UP ASSY, 2	L	87-262-523-310		V+1.7-2 BLK(3)
22	83-ZG5-204-010		SPR-P, KICK				
23	83-ZG5-251-010		SHAFT, P.U GUIDE B				
24	87-045-375-010		MOT, LA8-388				
25	83-ZG5-224-010		HLDR, MOTOR O.H. ASSY				

## ■ ACCESSORIES / PACKAGE LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カリ NO.	DESCRIPTION
	84-HM1-627-010	AC-421 E<AE1<H>>	
	84-HM1-624-010	AC-421 H<AE1<H>>	
	85-HM1-952-010	BAG, CARRING	
	84-HM1-629-110	BAT, LIP-12	
	85-HM1-954-010	BOX ASSY, BAT	
	87-050-049-010	CORD, 1M 3.5-PIN S	
	85-HM1-951-010	COVER, BAT	
	85-HM1-956-010	HEADPHONE, HP-RMP3	
	85-HM1-903-010	IB, EX(J)	
	87-009-725-010	PLUG, ADPTR, IR40<AE1<H>>	